QUANTIFYING THE POPULARITY OF AMPHITHEATRE SPECTACLES IN THE ROMAN WEST: DO AMPHITHEATRE SEATING CAPACITIES INDICATE POPULARITY LEVELS?

BY

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ABSTRACT

This thesis aims to determine whether it is possible to quantify the popularity of amphitheatre spectacles in the Roman West. Traditionally, amphitheatre spectacles have been regarded as having experienced widespread popularity, and there has been little in the way of a proper assessment of contemporary levels of popularity in modern scholarship. This work will attempt to tackle this issue, and the popularity of amphitheatre spectacles will be primarily explored through the comparison of amphitheatre seating capacity estimates with their corresponding urban population estimates.

Through a number of case studies, this thesis will argue that, instead of the traditionally accepted widespread popularity of amphitheatre spectacles, contemporary levels of popularity were complex, and could differ greatly, depending on time period and region of the Roman West. In these case studies, a number of factors will be considered to assess if the popularity levels in a certain region are truly reflected by the capacity-to-population ratio. This assessment includes analyses of elements of urbanism, rural populations, economic factors and the popularity of other spectacles in the area.

The data required to undertake this comparison has been compiled in an extensive database, which is presented in the appendices of this work.

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INTRODUCTION

The amphitheatre stands as one of the most prominent symbols of Roman culture. The amphitheatre building type is a distinctly 'Roman' feature, and the games which took place within these structures have become one of the most recognisable features of Roman culture. The remains of amphitheatres can still be found across the Roman Empire, from Eastern Syria to Southern Scotland.[1] There are currently over 250 known amphitheatres in the Latin West, with 'new' amphitheatres being identified in 2014.[2] In the Greek East, there is physical evidence for 23 amphitheatres, with another 11 attested to in various documentary sources.[3] This thesis will focus on the Latin West, due to the weight of evidence for amphitheatre spectacles that can be found there, and to avoid, in what is a short thesis, the problems associated with analysing the cultural differences which existed with and within the Greek East.[4] The games that took place in these amphitheatres were largely made up of two main components: gladiatorial combat (*munera*) and animal hunts (*venationes*).[5] Collectively, these events are known as amphitheatre spectacles and will be referred to as such throughout this thesis.

The popularity of gladiators in modern popular culture is undeniable; the success of Ridley Scott's 2000 film *Gladiator* and the 2010 TV series *Spartacus* have helped to cement

[1] See database in Appendix V, Hackett No. ITAL CAMP #11 and BRIT #12 respectively. A key which briefly explains some of the conventions within the database is also provided in Appendix I. Also see Dodge 2009: 29-45. For the amphitheatre at Duro-Europos, see Rostovtzeff *et al* 1936: 72-77. For the amphitheatre at Inveresk see Neighbour *et al* 2007: 125-140.
[2] There are two amphitheatres which were 'discovered' during 2014: Torreparedones and Lanuvium. For the former, see Monterroso-Checa 2017: 2-8. For the latter, see Aryamontri and Renner 2017: 372-386. Also see Appendix V, Hackett No. HISP B #7 and ITAL LAT #7 for Torreparedones and Lanuvium, respectively.
[3] Dodge 2009: 29-45.
[4] Dodge 2009: 29-45.
[5] There would also be executions of criminals during the middle of the day.

amphitheatre culture's place within the modern notion of the Roman world. [6] Was amphitheatre culture, then, as popular in the Roman period as it is clearly considered today? The regularity of depictions of various aspects of amphitheatre culture (most usually of the gladiators themselves) on artefacts and in art certainly hints at the cultural significance of spectacles to the Roman populace. These representations range from small household objects, such as on pottery and ceramic objects, to the central image of mosaics found in villas.[7] We can also see the popularity of spectacles reflected in the literary record. Amphitheatre spectacles feature fairly regularly in our elite literary sources; the majority of which write from a negative standpoint - ranging from the chastisement of overeager spectators to the outrage caused by members of the elite performing in the arena.[8] However, Cicero comments that, even though some may pretend not to like spectacles, in reality, all do.[9] The most 'balanced' (in terms of opinion) evidence for non-elite views towards amphitheatre spectacles can be found in inscriptions and graffiti (particularly from Pompeii).[10]

It is somewhat surprising, then, that the 'popularity' of spectacles has received little attention in the field of amphitheatre studies.[11] Instead, academic work has largely focussed upon either the architectural features of amphitheatres or the socio-political functions of

[6] 'Amphitheatre culture' can be defined as the cultural aspects which were intrinsically linked to the amphitheatre.
[7] For example, the Magerius mosaic. See Beschaouch 1966: 134-157 and Dunbabin 1976: 67-70.
[8] Wistrand 1992: 11-25. Wistrand's short book is still one of the best sources for elite attitudes towards all form of spectacles.
[9] Cicero. *Pro Murena*. 40. 'Therefore, believe me, men do find pleasure in games, not only those who admit it, but those as well who pretend they do not'. Additionally, see Cicero. *Pro Murena.* 38-39. 'For why should I speak of the great delight the people and the ignorant crowd take in games? It is not to be wondered at.'
[10] Garraffoni and Funari: 2009. 185-193.
[11] 'Amphitheatre studies' can be defined as works which focus on any aspect of amphitheatre culture.

amphitheatre culture (largely paying more attention to the elite audiences of Roman society). It has to be conceded that the notion of popularity is an abstract one, and there are potential ambiguities surrounding the definition of popularity (especially in an ancient context) which, if not correctly understood, could hinder any investigation into ancient popularity. In terms of this thesis, 'popularity' can be used as shorthand for meaning the cultural and social significance of amphitheatre culture in a specific time or place. Additionally, 'popularity' can be used to describe the condition of amphitheatre spectacles being enjoyed[12] by the populace of an area (regardless of social standing).[13]

There are considerable difficulties in investigating ancient popularity levels, such as problems with understanding Roman societal habits and behaviours. Additionally, there are problems with key statistical data (or the lack thereof) through which we might measure popularity in the modern world, such as gate receipts, regularity of events and average attendance levels.[14] One must also consider the relationship between popularity and attendance and whether attending the games automatically equated to a person holding them in high personal regard: the experiences of Seneca and Saint Alypius could potentially suggest towards attendance at the games as being something of a 'social necessity', and

[12] There are some potential issues with what terminology should be used to describe those Romans who attended amphitheatre spectacles. While the term 'fan' or 'fanatic' may seem appropriate due to its origins from the latin *fanaticus*, it is essentially a modern term and is best used in the context of 'modern' sports (see Brown 2014 for a discussion of origins of the football fan) rather than ancient spectacles. The use of 'supporter' and its synonyms is certainly more applicable than 'fan', though 'supporter' comes with its own issues. 'Supporter' can imply an affiliation with a particular team or club. 'Supporter' is entirely applicable, then, in the context of chariot racing where factions were an intrinsic aspect of the spectacle (see Cameron 1976: *passim*), but there is little evidence for factions in the amphitheatre until the late 5th century AD (Cameron 1976: 193-230). Therefore, the most appropriate terminology to use when discussing those who attended amphitheatre spectacles for the current period of study is 'spectators'.

[13] The Oxford English Dictionary's definition of popularity is: 'the fact or condition of being liked, admired, or supported by many people or by a particular group of people; general acceptance or approval'.

[14] A number of the amphitheatres included in the database compiled for this thesis have incomplete sets of data. This is further discussed in the appendices of this thesis.

that some attendees perhaps only held a passing interest in amphitheatre spectacles at best.[15] Despite these problems, the lack of prior academic attention to the popularity of amphitheatre spectacles means that works like this are much needed. This thesis will examine and attempt to quantify the popularity of amphitheatre spectacles through the analysis and comparison of two data sets: amphitheatre seating capacity estimates and estimated urban population levels. These two data sets, however, are imperfect and incomplete and must be used with caution. Therefore, any conclusion concerning popularity or an amphitheatre's seating capacity offered in this work is theoretical and open to error. There are also a multitude of explanations for the phenomena presented in this thesis. For example, one of the major conclusions of the third chapter of this thesis is that some high capacity amphitheatres were commissioned due to the popularity of amphitheatre spectacles in the surrounding area. However, we cannot claim that popularity was the *only* reason for the amphitheatre being constructed in such a monumental manner. Instead, we must consider popularity in conjunction with other factors which potentially influenced the construction of an amphitheatre. Civic competition, for instance, is one of these 'other' factors. Amphitheatres have long been associated with inter-city rivalry, and such rivalry could lead to violent confrontations, as can be seen in the literary record.[16] Civic competition could also potentially explain the similarities in size (and seating capacity) of the Flavian-era amphitheatres of Arles and Nîmes.[17] Though this thesis will predominately

[15] Seneca. *Letters.* 7.1-6. Another similar example can be found in the work of Augustine of Hippo (Augustine of Hippo. *Confessions.* 6.8.13) who recounts the story of St Alypius of Thagaste who, though utterly apposed to amphitheatre games, was dragged along by some associates to attend a day of games (Alypius eventually becomes enthralled by the spectacle, suggesting further at the enthralling nature of amphitheatre spectacles).
[16] For example, the amphitheatre at Placentia was burnt down by the soldiers of Vitellius on the account of civic jealousy, as noted by Tacitus (Tacitus. *Histories.* 2.21.). Another example is the infamous riot at Pompeii in AD 59 that left numerous Nuecerians maimed or dead, also reported by Tacitus (Tacitus. *Annales.* 14.17.).
[17] Laurence *et al* 2011: 121-124.

focus on popularity, and how popularity may have factored into the different stages of an amphitheatre's construction, it will also examine the other motivations that were apparent during the construction of an amphitheatre.

Amphitheatre culture was not just a significant cultural force; it could be an important signifier of Roman urbanism, with amphitheatres dominating the urban landscape. Most studies of Roman urbanism, regardless of scope, will at least include some discussion on the role of amphitheatres in the Roman city. This is unsurprising, considering the monumental nature of an amphitheatre and the consequent physical and cultural impact it could have on a city.[18] This type of study can be best described as the field of Roman urbanism *looking in* at the field of amphitheatre studies. It is surprising, however, that little (if arguably any) work has been done from the opposite perspective: that is, the field of amphitheatre studies *looking out* at the field of Roman urbanism. This thesis aims to kick-start a new phase of work in amphitheatre studies by attempting to understand ancient popularity, in addition to analysing how urbanism, economic and demographic factors could become 'influencing factors' during the construction of amphitheatres.[19] In essence, this analysis of popularity will be conducted through the comparison of the seating capacity estimates of amphitheatres with the population estimates of the place in which the amphitheatre was constructed and will allow us to make assessments of popularity levels on the local, regional

[18] For example, the amphitheatre at Samarobriva Ambianorum (Amiens, France) is situated directly next to the forum and was undoubtedly one of the largest and most recognisable buildings in the city during the Roman period. We can also assume that the amphitheatre would have been one of the most visible monuments to people travelling into the city, especially considering the lack of city walls. Goodman 2007: 64-65.

[19] 'Influencing factors' can be described as factors which the builders of an amphitheatre would likely have to have considered during the construction of said structure, such as a cities place within its local urban network, the demand for spectacles from the local populace or the time and monetary cost(s) of constructing an amphitheatre.

and cross-regional scales. The methodology of this thesis will be discussed at length in chapter 2.

Chronologically, this thesis will cover the end of the 2nd century BC to the end of the 3rd century AD. These dates correspond with the earliest suggested construction dates of permanent amphitheatres (Capua, Cumae and Liternum),[20] and with some of the last amphitheatres to be constructed such as Aleria, Serdica and Theveste (Phase 2).[21]

To meet the aims of the thesis, a large set of data for amphitheatres and their urban settings has been compiled, which is presented in database form as appendix I. The database consists of some 253 amphitheatres from across the Latin West: these, however, are not 253 *individual* amphitheatres.[22] In a number of instances, an amphitheatre has two separate entries in the database. This occurs when an amphitheatre had at least two distinct archaeologically recognised building phases. Though there is no doubt that many amphitheatres experienced some form of renovation, repair or minor adjustment, there will only be multiple entries for the same amphitheatre if Golvin has more than one entry in his *L'amphithéâtre Romain,* from where the majority of the data for the amphitheatres in this thesis originates.[23]

This thesis is divided into four chapters. Chapter 1 provides a review of trends in amphitheatre scholarship. The chapter charts the beginnings of the field and the deep-

[20] Bomgardner 2000: 57-60. Also see Appendix V, 'Italia Reg. I Campania', Hackett No. ITAL CAMP #4, #5 and #6.
[21] See Appendix V, Hackett No. COR #1, MOES SUP #1 and NUM #8.
[22] Whilst every attempt has been made to include every currently known amphitheatre in said database, it does not pretend to be an exhaustive list.
[23] For an example of an amphitheatre with multiple entries, see Golvin 1988: 158-159, which concerns the amphitheatre at Lupiae.

rooted ethical issues that impinge on the study of the phenomenon. It is important that these ethical issues are discussed and dissected, as they have framed much of the work that can be attributed to amphitheatre studies.[24] The chapter also examines the cross-disciplinary works which have appeared since the late 1990's.

Chapter 2 is a discussion of my methodology and is split into three sections: a discussion of the methods for calculating urban population levels, the calculation of seating capacity estimates and how these will be used in conjunction with each other. The chapter begins with a review of the different methods that have been used to calculate the population of urban landscapes. The discussion briefly considers the positives and negatives of various methods which have been used in previous works, and explain why the 'area x density method' has been used. Following this, there will be a discussion of the methods for the calculation of populations of the rural landscapes in the Roman world, and the problems associated with them. This discussion is important, as rural populations and their interactions with urban centres will form a large part of the following chapter.

The second section of this chapter begins with a dissection of the method first suggested by Golvin, that will be used to calculate seating capacity estimates for amphitheatres. A wholescale recalculation of seating capacity estimates will have to be undertaken because of the issues connected to Golvin's work. The final section of this chapter will examine how

[24] The major philosophical issue that early academics had with amphitheatre spectacles was the violence visited upon Christians in the arena. An argument could be made that some scholars were/are opposed to amphitheatre spectacles because of the 'uncivilised' nature of said spectacles damaging the 'sophisticated' image of Rome which was readily promoted by imperialistic studies that dominated the 19th and large parts of the 20th century.

the various methods for calculating population levels and capacity estimates can be used together to be able to meet the aims and objectives of this thesis.

The third chapter of the thesis examines the most prominent pattern that I have identified within the dataset: amphitheatres which have higher seating capacities than their corresponding population estimates could imply a high level of popularity in the region. The amphitheatres in this dataset will be categorised as either 'oversized' or 'regional' amphitheatres, with both definitions being explained and analysed. Three regional case studies form the heart of this chapter: Campania, Etruria and Baetica. The chapter will show that rural populations, regional interactivity and local economies could have been considered during the construction processes of amphitheatres.

The fourth chapter of this thesis will examine another important pattern in the dataset: amphitheatres which have a lower seating capacity than the corresponding urban population estimates would imply a low level of popularity for amphitheatre spectacles. The amphitheatres in this dataset will be categorised as 'undersized'. There will be two case studies in this chapter: Gaul and Africa Proconsularis. These case studies will examine whether an 'undersized' amphitheatre is an indicator of a low level of popularity, mainly through comparing amphitheatre seating capacities with capacities of other spectacle buildings, as well as the problems with doing so. The chapter will conclude that while it is difficult to determine whether 'undersized' amphitheatres equate to low popularity levels in the largest cities of the empire, we can make more certain estimations when it comes to the middling or smaller cities of the empire.

Overall, this thesis will argue that (despite all of the problems with studying contemporary popularity levels) it is possible to quantify levels of popularity for amphitheatre spectacles in the Latin West. It will also demonstrate that the popularity of amphitheatre spectacles should not be considered in sweeping statements. Instead, individual areas, be they large geographical entities such as a province or a region, or smaller geographical areas such as an urban settlement and its respective territory, should be studied on an individual basis so as in to allow for a proper understanding of the popularity of amphitheatre spectacles.

CHAPTER 1: THE STATE OF AMPHITHEATRE STUDIES

1.1 THE DIFFERENT STRANDS OF AMPHITHEATRE STUDIES

In a 1993 review of arguably the most important monograph within the field of amphitheatre studies, Golvin's *L'amphithéâtre Romain*, Bomgardner put forward an optimistic manifesto for the future of the discipline:[25]

> Now the field of amphitheatre studies needs to progress along two mutually interactive fronts. Detailed studies of individual monuments and regional group studies are required to supplement the small number presently available. Larger works of synthesis and analysis are also needed, especially concerning the problems of architectural traditions and related families of monuments. Individual monuments need to be related to one another and placed in larger groupings, so that chronological criteria can then help to elucidate the directions of flow of architectural ideas.

In the 35 years since the setting out of this roadmap, some worthwhile advances have been made within the field. A number of regional studies have been published, the best of which focus on North Africa,[26] Italy,[27] Hispania[28] and Britain.[29] These have all enhanced our understanding of regional situations. However, any cross-regional comparison even within

[25] Bomgardner 1993: 387-388.
[26] Bomgardner 2000. A more recent study of amphitheatres in Africa Proconsularis has been undertaken by Gilberto Montali (Montali 2015). Montali has discovered two new amphitheatres in Africa Proconsularis: Thizika and Municipium Aurelium C[ommodianum]. Unfortunately, I have been unable to access Montali's monograph, and have had to rely on Bomgardner 2018 for a review of Montali's work.
[27] Tosi *et al.* 2003. Also see Welch 2007.
[28] Martinez and Navascués 1994. Also see Cabello *et al* 2009.
[29] Wilmott 2008.

the aforementioned studies is rare, and too much reliance has been put on Golvin's text whose errors are noted within the field of amphitheatre studies and in inter-disciplinary studies.[30]

Bomgardner's manifesto perplexingly omits other sub-sections of amphitheatre studies, such as socio-political, anthropological and cultural studies. As will be discussed below, the socio-political importance of the amphitheatre within its contemporary context is an important part of amphitheatre studies. There is also a tendency in amphitheatre studies to use facets of other academic disciplines in conjunction with archaeological or literary evidence to examine amphitheatre culture, and Bomgardner failed to take these into consideration. Perhaps the best example of this is Fagan's *The Lure of the Arena: Social Psychology and the Crowd at the Roman Games*.[31] The use of modern psychological research in an attempt to understand the crowd's experienced at the games is an interesting addition to amphitheatre studies. It is difficult to deny the skill with which Fagan makes his arguments, but one could argue against using psychological theories underpinned by modern phenomena (such as the influence of mass media and global sports broadcasting) being applied to Roman audiences.[32] Carter notes the question of cultural differences and what role social and cultural context plays in shaping a person's attitude to something like violent entertainment spectacles. It must be noted though that Fagan himself readily notes the problems with transposing modern psychological theories onto Roman audiences.[33]

[30] Bomgardner 1993: 375-390. Also see Laurence *et al* 2011: 254.
[31] Fagan 2011.
[32] Carter 2012: 704-707.
[33] Fagan 2011 Carter 2012: 704-707.

Another example of a cross-discipline approach is Futrell's *Blood in the Arena*, which contains a chapter where she uses a cross-cultural analogy with Meso-American culture and attempts to link amphitheatre spectacles with those of human sacrifices.[34] While thought-provoking and imaginative, the use of any 'ethnographical analogy'[35] is problematic, as it is difficult to consistently conflate ritual violence (as in Meso-America) with gladiatorial combat, as there is also evidence for ancients who *chose* to perform in gladiatorial combat of their own volition, rather than been forced to by others.[36]

1.2: PROBLEMS AND TRENDS WITHIN AMPHITHEATRE STUDIES

The field of amphitheatre studies is a relatively young field in the world of classical archaeology and ancient history; one could argue that it is not a field in its own right, instead being a sub-section of Roman cultural studies. This slow uptake can be largely attributed to the distaste of 18th, 19th and early 20th century scholars, born out of ethical and sometimes religious beliefs, who hindered the advancement of our understanding of spectacles[37]. One of the more influential early works which is framed by its moral opposition to amphitheatre spectacles is that of Friedländer. Modern western Judaeo-Christian values, in addition to clear class and gender biases, are best shown in the following passage:[38]

> But these spectacles did not just occupy the masses, for whom they were intended…[they] fascinated all, infected the intellect of Rome, even the highest and

[34] Futrell 1997: 169-210. Also see Welch 2007: 3. Futrell 2006: 130-133 discusses gladiators who specifically chosen to become gladiators, rather than being forcibly made to appear in the arena by others.
[35] Carter 1999: 155-157.
[36] Welch 2001: 492-498.
[37] Welch 2007: 1-3. Also see Wilmott 2008: 8.
[38] Friedländer 1908: 16-17. Note that this is from the English translation and that the passage may be found on a different page in the original German publication. Also see Welch 2007: 1-2.

> most cultured circles, and especially the women. When they drew breath, they breathed in the passion for the [arena]… 'an original evil begotten in the womb'.

A tendency to disparage and condemn amphitheatre spectacles was (and is) certainly common, as the following comment by the late archaeologist George Boon clearly shows: 'We may… be certain that the bloody and degrading spectacles for which the name of Imperial Rome stands forever condemned, were witnessed here [the amphitheatre at Caerleon] and in every such building'.[39] Perhaps the most infamous example of this condemnation is that of Grant, who stated that: 'the two most quantitatively destructive institutions in history are Nazism and the Roman gladiators'.[40] These 'value-laden comments'[41] certainly do not add to our overall understanding of amphitheatre spectacles, and have led to prejudiced assessments of this important element of Roman culture.

The first work in amphitheatres studies to attempt to leave the moralistic framing of the past is Auguet's 1972 *Cruelty and Civilisation: The Roman Games.*[42] Auguet's most enduring legacy is the tone in his work is set. The title of his text is still slightly problematic and clearly set a precedent, though Welch argues that Auget's work marked a change in direction for amphitheatre studies from the moralistic dominated analyses of the likes of Friedländer and Grant.[43]

[39] Boon 1972: 99.
[40] Grant 1967: 8.
[41] Wilmott 2008: 8.
[42] Auguet 1972.
[43] Welch 2007: 1-2.

The ethical issues that surround amphitheatre studies are perpetuated by the often cited 1983 work of Hopkins, *Death and Renewal.*[44] Hopkins clearly sets out his personal opinions on amphitheatre spectacles in his introduction by stating the following:

> Nowadays, we admire the Colosseum in Rome and other great Roman amphitheatres… as architectural monuments, while choosing to forget, I suspect, that this was where Romans regularly organised fights to the death between hundreds of gladiators, the mass execution of unarmed criminals and the indiscriminate slaughter of domestic and wild animals.[45]

It is not hard to compare the moral condemnation apparent in Augustine, Tacitus, or Seneca that underpins Hopkins' work.[46] Sensationalist titles of other works, such as Kyle's *Spectacles of Death in Ancient Rome* and Plass' *The Game of Death in Ancient Rome,* are likely good for sales but do not help us move away from the philosophical and moralistic framing which has been ever-present in amphitheatre studies.[47] In fact, even the brief of Kyle's work inadvertently highlights the problems which exist within amphitheatre studies: 'The elaborate and inventive slaughter of humans and animals in the arena fed an insatiable

[44] Hopkins 1983: 1-27. At this point, it seems apt to note that objectivity is difficult on this subject. While I personally think that the aforementioned philosophical issues are/were overplayed for the intention of creating sensationalist works, I am not advocating the violence that was an inherent part of amphitheatre spectacles and instead arguing for an objective approach that is currently unapparent in the study of Roman public entertainment.

[45] Hopkins 1983: 2. This sort of language is used once again in Hopkins and Beard's 2005 work *The Colosseum.* For example, one of the chapters is entitled *The Killing Fields*, which clearly follows in the footsteps of Hopkins' 1983 publication (*The Colosseum* is clearly intended as a piece of 'popular' history rather than an academic publication, which may explain the exaggerated nature of some of the language used). The language used here by Hopkins is clearly an attempt to influence the readers and later academics to follow his disparagement of amphitheatre spectacles.

[46] For example, Tacitus (Tacitus. *Annals.* 1.76.3.), states that gladiators are 'worthless blood'. Also see Seneca's disgust at the actions of the spectators in Seneca. *Letters.* 7.1-6., especially 7.1.4 and 7.1.5.

[47] Kyle 1998 & Plass 1995. Plass' work is not entirely about amphitheatre spectacles, as a large section of the publication focusses on political suicide in Ancient Rome.

desire for violent spectacle among the Roman people'.[48] Though we should not *forget* the violence of amphitheatre spectacles, we should not wholly fixate our attention on the violence. We should instead begin to analyse the deeper cultural values of amphitheatre spectacles to the 'ordinary' Roman, in addition to attempting to better understand the spread of amphitheatre spectacles as a cultural and social phenomenon in the Roman world.

The propensity to assess and reassess elite reactions is another problem evident within amphitheatre studies. It can be argued that with each new work which primarily focuses on the representation of spectacles within the classical texts, we get further and further away from the real reactions of the non-elite populace of the Roman world, as suggested by Garraffoni and Funari.[49] A possible explanation for this is its 'easiness'. However, it must be noted that it is difficult to determine the value of amphitheatre spectacles for the non-elites due to the lack of first-hand evidence for non-elite views.[50] Nonetheless, the continued emergence of more archaeological evidence will certainly enhance our understanding and lead to a more proportional and 'balanced' image of spectacles across the whole of Roman society and one that is not heavily reliant on the views of the Roman elite.

1.3: ARCHITECTURAL STUDIES OF AMPHITHEATRES

As has been noted above, any new study of amphitheatres as an architectural monument should likely start by consulting the vast compendium of knowledge and data that is Golvin's

[48] https://ebookcentral.proquest.com/lib/bham/detail.action?docID=165397 Date Accessed 01/09/2018.
[49] Garraffoni & Funari 2009: 185.
[50] Garraffoni & Funari 2009: 185-193.

L'amphitheatre Romain.[51] Golvin's work was the first book to list (with plans and bibliography for each) all amphitheatres known at the time of publication and provided sets of data for later academics.[52] In the overall study of Roman spectacles, it ranks alongside Humphrey's *Roman Circuses* and Sear's *Roman Theatres: An Architectural Study* as the cornerstone of the discipline. However, as mentioned above, Golvin's work is a flawed masterpiece.[53] The propensity of later scholars to refer to Golvin's work and the lack of a large-scale revision of his work – either by Golvin or another scholar - also presents us with another issue: the over-reliance on Golvin's research by other academics, which led to further fundamental errors in later publications. Bomgardner argues that the method by which Golvin works out the seating capacity produces estimates that are 10% too high; although Bomgardner's later seating capacity estimates for the North African amphitheatres are all higher than the estimates which Golvin provided, causing more confusion.[54]

Another crucial architectural study of amphitheatres is Bomgardner's *The Story of the Roman Amphitheatre.*[55] Primarily focussing on the amphitheatres of North Africa, for which it provides a useful catalogue, it is narrower in scope than Golvin's work despite the title. Bomgardner's conclusions occasionally leave more questions than answers. A prime example is in his discussion on the distribution of amphitheatres in the Roman Empire. He points out some of the 'chief factors' in the construction of 'civic' amphitheatres but fails

[51] Golvin 1988. Other scholars such as Welch, Wilmott and Bomgardner all pay homage to Golvin's work in their own publications.
[52] Welch 1991: 272.
[53] Bomgardner 1993: 387.
[54] In his 1993 review article, Bomgardner discusses a 'factor' which needs to be included in calculating seating capacities. However, in his 2000 publication, there is no mention of any 'factor'. Considering this, I have decided to essentially ignore the notion of a 'factor', and instead followed the calculations set out in Bomgardner's 2000 work.
[55] Bomgardner 2000.

both to include references and consider the factors for the construction of military amphitheatres, leaving his factors as slightly generic and lacking in detail.

Katherine Welch's 2007 work, *The Roman Amphitheatre: From Its Origins to the Colosseum* is similar in scope to Bomgardner's.[56] Welch addresses the previously overlooked evolution of the amphitheatre as an architectural form, focussing on its origins in the late republican period to its 'canonisation as an architectural form' when the Colosseum was constructed.[57] Welch herself states that her book: 'Does not contain a comprehensive survey of amphitheatre architecture. Rather, it is an interpretive essay on the development of the amphitheatre building type'.[58] There is a fairly useful appendix of amphitheatres which date to the Republican period, though it largely regurgitates and does little to challenge the discrepancies within Golvin's data.[59]

1.4: THE POPULARITY OF THE GAMES AND MATERIAL CULTURE

Discussion of the popularity of amphitheatre spectacles in academic work at length is rare. The issue of contemporary popularity tends to be glossed over with statements which just claim that amphitheatre spectacles were popular,[60] or use elite literary evidence as a means to discuss popularity.[61] However, it must be acknowledged that it is difficult to make empirical statements about popularity by using either source type. The most efficient of these would be to make use of material cultural evidence, though a study of that nature

[56] Welch 2007.
[57] Welch 2007: 11-43.
[58] Welch 2007: 8-9.
[59] Welch 2007: 189-252. For example, the information the amphitheatre at Cumae is the same in both Golvin and Welch (Golvin 1988: 25, Welch 2007: 204-208.) However, one must remember the difficulties of finding excavation reports, as well as remembering the possibility of a lack of excavations.
[60] Toner 1995: *passim.*
[61] Garraffoni and Funari 2009: 185-193.

would come with its own problems, such as collection and reporting bias and issues surrounding the 'translation of material culture'.[62]

A useful study of amphitheatre related material culture is Dunbabin's 2016 work, *Theatre and Spectacle in the Art of the Roman Empire.*[63] Dunbabin states that: 'The reach of amphitheatre imagery extended far beyond the realms of the elite and 'near-elite'… in almost every region of the empire a vast number of people enjoyed scenes from the arena on everyday objects'.[64] Dunbabin then goes on to argue that the vast array of material culture related to amphitheatre culture is clear evidence of enthusiasm across the empire. While correct, this does not get us closer to quantifying the levels of popularity (although doing so was not the aim of Dunbabin's work, and in actuality, would be very difficult to do). This may be a difficult task if undertaken from a purely material cultural perspective, but if the material culture was incorporated with other evidence types (e.g. architectural evidence) then quantification might be possible. However, analysing all types of amphitheatre related material culture from across the empire would require vast amounts of effort and time, making such a study highly unlikely. Instead, work which considers individual types of evidence from particular regions of the Roman world are more achievable: a good example of this are the *Epigrafia anfiteatrale dell'occidente romano* (EAOR) publications, which since 1988 have critically re-edited all known ancient epigraphical texts on amphitheatre spectacles from a given region.[65]

[62] Shanks and Tilley 2007: 79-94. This article argues that any attempt to try and explain material culture in functionalist terms or subsume it under cross-cultural generalisations as entirely unsatisfactory.
[63] Dunbabin 2016: *passim.*
[64] Dunbabin 2016: 222.
[65] Edmondson and Carter 2014: 537-558. There are currently eight volumes of the *Epigrafia anfiteatrale dell'occidentre Romano.*

The conclusions made by Dunbabin on the spread of amphitheatre culture are somewhat similar to those found in other works. For example, Wilmott's recent work includes a brief discussion of the material culture evidence for amphitheatre spectacles which have been found in Roman Britain, showing that such evidence is spread fairly evenly across Roman Britain rather than in one concentrated place/region. Additionally, some of the evidence that Wilmott discusses can be found in areas of Britain where there are no currently known amphitheatres.[66] The fact that the majority of the evidence Wilmott is discussing was imported into Roman Britain is surprising; perhaps an extended analysis of the areas in which these items were made could help to suggest at different levels of popularity in different regions.[67]

1.5: THE 'NEW' FUTURE OF AMPHITHEATRE STUDIES

This chapter has shown that the field of amphitheatre studies has experienced somewhat of a revisionist revival in recent decades, which can only be described as positive. In terms of architectural based studies of amphitheatre spectacles, there have been promising and useful additions since the publication of Golvin's work. Most notable of these are the works of Welch and Bomgardner.[68] However, it is evident that the work of Golvin, which is still seen as the cornerstone of the discipline, is becoming increasingly dated. The discoveries of new amphitheatres, either through chance archaeological discovery or through the use of

[66] Wilmott 2010: 161-182. For example, Wilmott discusses mosaics which depict aspects of amphitheatre culture from the following locations: Eccles (Kent), Bignor (West Sussex) and Brading (Isle of Wight).
[67] Wilmott 2010: 172-178.
[68] Welch 2007. Bomgardner 2000. Martinez and Navascués 1994.

survey methods, such as the amphitheatres at Torreparedones and Forum Novum,[69] since the publication of Golvin's work have not been collated into a wide-ranging architectural study. Clearly, this makes it somewhat difficult to frame these new discoveries within the overall picture of amphitheatre culture.

Meanwhile, studies concerning the social and cultural aspects of amphitheatre studies have enhanced our understanding of certain facets of amphitheatre culture. The most apparent of these is the cultural and socio-political importance of amphitheatre spectacles to the elite echelons of Roman society. However, the importance of amphitheatre spectacles to the elites of Roman society has arguably been 'over-studied', meaning that little attention has been paid to the rest of the Roman population. Arguably the best means of attempting to 'reintegrate' the non-elites into the picture is to analyse the material culture evidence available to us, which has been attempted by scholars such as Dunbabin and Garraffoni.[70] There has also been a recent rise in the popularity of employing anthropological and psycho-analytical frameworks in an attempt to better understand the sociological reasons behind amphitheatre spectacles, as was noted above. These types of works are certainly positive additions to the corpus of work related to amphitheatre studies, however, the use of modern theories on ancient societies can prove to be problematic and therefore must be undertaken within a clear and objective framework.

Overall, this chapter has highlighted that there has been considerable prior research into aspects of amphitheatre culture, especially in relation to architectural and political elements

[69] For Torreparedones (southern Spain), see Monterroso-Checa 2017: 2-8. For the amphitheatre at Forum Novum (central Italy), see Gaffney *et al* 2004: 237-251, and also see Appendix VI, 'Italia Reg. IV Samnium-Sabina', Hackett No. ITAL SAM-SAB #4.
[70] Dunbabin 2016. Garraffoni and Funari 2009: 185-193.

of said culture. However, there are areas of amphitheatre culture which have been rarely studied. Perhaps most startingly, there so far been a lack of any meaningful study of the popularity of amphitheatre spectacles. Despite the issues of attempting to quantify popularity (which will be discussed in more depth in the following chapter), it is evident that such work has to be undertaken, which this thesis will attempt to do.

CHAPTER 2: METHODOLOGY

The overarching aim of this thesis is to attempt to quantify the levels of popularity of amphitheatre spectacles. For the reasons discussed in the preceding chapter, this will primarily be through the utilisation of amphitheatre seating capacity estimates as a proxy for popularity - although this method is not without its problems, which will be discussed later in this chapter. Over the course of this thesis, quantification of popularity will be attempted through the analysis of patterns and anomalies within the database that was compiled from various sources, which will also be discussed in more detail below.[71]

2.1: CALCULATING THE POPULATION OF URBAN LANDSCAPES

The methods of calculating Roman urban populations are complex, and there are a number of difficulties surrounding said methods.[72] Morley states that the 'most obvious difficulty is the limited and problematic evidence for the sizes of urban populations, whether these are calculated on the basis of inscriptions recording civic benefactions, the length of the city walls, or the size of the built-up area'.[73] Another issue is the problem of chronological vagueness. Estimates of urban population can often relate to the site's greatest extent during a given period, rather than the size of an urban place at one specific moment; the date used to determine an urban centre's size (and therefore population) might not correlate with the construction date of the amphitheatre in said place. An example of this issue is the situation at Luna, in Etruria. The date that Hanson gives for Luna's size (23ha) is

[71] Golvin 1988. Also see Wilson 2011, Bomgardner 2000 and Hanson 2016.
[72] Scheidel 2001: 1-3.
[73] Morley 2011: 144-145.

177 BC, while the date for the construction of the amphitheatre is the Julio-Claudian period.[74] The near two hundred year difference between these two dates makes using these figures in conjunction with one another difficult, as the city's size could have been different at the time of the construction of the amphitheatre. While it is important to note this difficulty, for the parameters of this thesis the lack of 'perfect' archaeological data for each site mean that this issue will have to be lived with in certain cases.

There are a number of analyses on extrapolations of density from floor areas of structures, numbers of houses, or from city areas that have to be considered.[75] Wilson argues that extrapolating city areas are the least problematic of all these problematic estimates, and that 'it is the *only* method for which there exist sufficiently abundant data for large numbers of cities'.[76] Hanson and Ortman argue that the strength of the 'area x density method' is that it 'enables one to control and manipulate our estimates of the population of each settlement'.[77] In terms of this study, this seems to be the best way in which to work out the populations of an urban area.

A reasonable density multiplier (or range of multipliers) would also have to be used to allow us to determine population levels; the majority of academics use a range between 100 and 400 people per hectare for ancient cities.[78] By using a range, we could gain a sense of the

[74] Hanson 2016: 612 and Golvin 1988: 285. Also see Appendix V, 'Italia Reg. VII Etruria', Hackett No. ITAL ETR #8.
[75] Wilson 2011: 170-172. Also see, Chandler 1987: 6-7, Bairoch 1988, Sumner 1989:631-641, Kardulias 1992: 276-287, and Zorn 1994: 31-48. Hassan 1981: 63-76 succinctly reviews a number of different methods of population calculation.
[76] Wilson 2011: 170.
[77] Hanson and Ortman 2017: 301-324. Hanson and Ortman suggest that the 'area x density method' is the 'least imperfect' method, with which Wilson (Wilson 2011: 170-172.) also agrees.
[78] Hassan 1981: 66. Hassan notes a number of previous studies which used a range of between 100 and 400 per hectare for ancient cities. For example, Adams 1965 estimated the area of some archaeological sites in Mesopotamia by using a figure of 200 persons/ha. Renfrew 1972 suggested that the population density in the

minimum ('low count') and maximum ('high count') populations for a certain urban site. Whether to use 'high count' and 'low count' is a constant debate within the study of Roman city populations'.[79] High counts can give spuriously high population levels for relatively small towns, while low counts would make larger (in terms of geographical size) cities seem sparsely populated. The use of a range of population densities within the aims of this thesis may complicate the issue of actually determining popularity on a site-by-site basis, as well as complicating comparisons between different sites in the same region.

Wilson argues that while sceptics would suggest that the need to express population numbers for Roman towns or cities as ranges between the maximum and the minimum makes the process too imprecise, hypothesising based on the two extremes allows us to at least test out different theories. I agree with Wilson's argument, but suggest that for the purposes of this study the same density multiplier is used for the calculation of urban populations for every site within a province or region. For example, the population estimate of each of the towns or cities in Campania will be calculated by multiplying the surface area by the same population density: 200/ha.[80] However, this method does not necessarily consider the following questions:[81]

- How much of the surface area of the sites were inhabited?
- What was the average number of residential structures within each area?

late Bronze Age in the Aegean was probably around 300 persons/ha. Lohmann 1979 suggested the persons/ha for the Augustan colony at Augusta Praetoria (Aosta) was 360/ha. Also see Wilson 2011: 171.

[79] De Ligt 2012 and Morley 2011.

[80] See Appendix VI, 'Italia Reg. I Campania'.

[81] These questions are laid out in Hanson and Ortman 2017: 306-307.

- How great was the average number of individuals within each of these properties?[82]

The questions laid out above are important, but are difficult to fully answer for every site; the level of archaeological evidence required to properly answer each of these questions is only apparent for a few of the best researched sites in the Classical world.[83]

Another problem is that there would have been considerable variation in the population density and therefore populations of towns of the same size. Population density could easily differ not only from region to region but from town to town.[84] Another considerable issue is that academics can offer different population estimates of specific sites from each other, which can wildly differ depending on their interpretation of the archaeological data.[85] An urban site's political, economic and administrative importance would clearly also have impacted on population density and overall population levels.[86]

It must be remembered that a number of factors will affect population density figures. For example, Rome and Ostia had a high proportion of multi-storey apartment blocks, meaning that while the surface area could be the same as somewhere like Pompeii, population density, and therefore population size, would be obviously higher.[87] Conversely, the

[82] Hanson and Ortman 2017: 306. It is also important to consider is how large the properties were, how many rooms they had, and how many storeys they had, as this could affect the number of individuals living within one property. This is partially accounted for in population density estimates, however.
[83] Hanson and Ortman 2017: 307.
[84] Wilson 2011: 176. Scholars tend to point to comparative data from European medieval societies to show that a wide range of urban population densities per hectare is theoretically possible, for example, Bowman and Wilson 2009: 57-59. Duncan-Jones (Duncan-Jones 1982: 275.), for example, showed that the scale of towns in Italy varied substantially, and suggests that there was a significant hierarchy of size. Also see Patterson 2006: 38-40.
[85] Jongman 1988: 108-112. Also see Wallace-Hadrill 1994: 95-103. Estimates of the population of Pompeii vary between 7,000 and 20,000, with a figure of around 10,000 being a more generally accepted figure. My own figure is 12,000 based upon a size of 60ha and a population density of 200/ha.
[86] Erdkamp 2012: 245.
[87] Wilson 2011: 171.

possibility for sparsely populated suburbs on the periphery of cities may affect population densities.[88] It is also important to consider that there would have been different emphases on areas given over to public space dedicated to monumental structures, and the inhabited area of each site would certainly have been different depending on that site's urban topography.[89]

Another issue with the method used in this study is how to distinguish where the boundaries of an urban site are, and how a city's hinterland and the people who reside within it affect our population estimates. A simple way in which to estimate an area of an ancient city are its clearly defined defensive structures, such as walls or ramparts.[90] The commonality of walls and their usually good levels of recording allow us to measure the urban space within the wall's circuit. However, while using defensive features as markers of a site's urban extent is one of the better methods, it is not without its issues.[91] An example of one of these issues can be seen in evidence from the late 3rd and early 4th centuries AD: newly constructed wall circuits could have a significant impact on cities,[92] as they may have surrounded a much smaller area than existing walls or other boundaries (though this does not necessarily equate to a drastic change in population).[93] The area of an urban site can also be defined by the 'extent of street and road networks or the locations of major public

[88] Goodman 2007: 68-72. Suburban villas and assorted agricultural establishments (such as small farming hamlets) may have made up these periphery suburbs of cities, and the populations of which may have been considered in antiquity to be part of the cities populace.
[89] Hanson and Ortman 2017: 306-308.
[90] Hanson 2016: 58. Also see Millett 1990 and Wilson 2011.
[91] Hanson 2016: 58-60. Also see Hansen 2006: 36-40.
[92] Sears 2011: 103-113.
[93] Goodman 2007: 203. Goodman notes the widespread construction of new defensive walls in this period. Additionally, she notes that these new walls generally followed an entirely different course from existing boundaries, often only surrounding a small portion of the area previously marked out as the urban centre. An example of this can be seen at Sens, where the original orthogonal grid covered around 225ha, yet the late 3rd century AD rampart only enclosed around 40ha at the centre of said grid. Also see Perrugot 1996: 263-278.

buildings',[94] in addition to natural topographical features or pomerial *cippi*.[95] Clearly, by purely using defensive structures as markers, we may inadvertently ignore the agricultural land and rural settlements within the territory of an urban site. This would, therefore, give us an incorrect estimate of a site's population levels.

2.2: CALCULATING THE POPULATION OF RURAL LANDSCAPES

The study of the periphery of Roman cities has previously been based on assumptions which see the city and country as two completely separate entities, with a sharp dividing line between them, rather than these entities overlapping.[96] Keay and Earl state that a major obstacle to a more 'joined-up' understanding of towns and their surrounding hinterlands is that the boundaries of surrounding rural territory (*territorium* or *ager*) are not easily reconstructed.[97]

It is unlikely that the population of the countryside felt themselves *completely* separate to the city, and evidence from legal texts shows that the urban periphery was regarded as overlapping with rural areas.[98] Furthermore, it is highly likely that the socio-cultural pull of the amphitheatre seeped into the countryside. If we consider the road networks that crisscrossed the rural landscapes of the empire then we have to imagine the possibility of cultural transmission and diffusion taking place within said systems.[99] A major conclusion from the following chapter of this thesis is that rural populations (alongside other factors)

[94] Hanson 2016: 59.
[95] Goodman 2007: 63-66.
[96] Goodman 2007: 1-7.
[97] Keay and Earl 2011: 276-278.
[98] Goodman 2007: 35-38. Though this 'overlap' of rural and urban certainly existed, there were likely areas where the 'overlap' was not as pronounced, such as in urban sites with huge territories or 'mixed' populations.
[99] Bekker-Nielsen 1989: 20-32. In areas with low 'intercenter' distances, such as Latium, Campania and Umbria, rural populations could quite easily access a number of cities from their rural dwellings.

could have been a primary factor in the construction of high capacity amphitheatres, especially in the case of high capacity amphitheatres in sparsely populated urban centres.[100] Therefore, it is important that the methods of calculating rural populations, in addition to the problems involved in such calculations, are carefully considered.

The problems of calculating rural or suburban population levels are complex. It is worth noting that the modelling of population figures through the use of survey data cannot be and will not be considered as 'absolute' numbers. Witcher's suggestion that these figures should be considered as 'models for thinking', in that they 'serve to highlight assumptions and logical problems which help to advance understanding, [in addition] to help to develop comparisons between different periods and regions' is sensible, and shall be used for the purposes of this thesis.[101] All models of rural or suburban population levels have the issue of determining the number of persons per site, which can differ greatly depending on the region and the assessment of the archaeological evidence from said region.[102] The principal method of population reconstruction for these sites is somewhat similar to that of urban sites: sites are given a standard population density per km^2 depending on site type, which is then extrapolated to create population estimates for a rural area.[103] The sites are usually divided into one of three site types: farm, villa or village.[104] There is significant debate on the definition of site type, particularly concerns raised by Rathbone on the distinction between villas and farms, which have been neatly addressed by Witcher.[105] While this

[100] Such amphitheatres will later be referred to as either 'oversized' or 'regional' amphitheatres. Also see Appendix IV and Appendix V.
[101] Witcher 2008: 299-300.
[102] Witcher 2008: 285-288.
[103] Witcher 2008: 283.
[104] Rathbone 1993. Also see Witcher 2008: 286-287.
[105] Witcher 2008: 286-288.

debate has to be recognised, this current thesis will stick to the 'near universal survey dichotomy'[106] which makes strict distinctions between farms, villas as well as accepted definitions of villages.

2.3: CALCULATING AMPHITHEATRE SEATING CAPACITIES

The most logical method of calculating seating capacity in amphitheatres currently put forward is by Golvin, which has subsequently been used by both Bomgardner and Montali.[107] There are a number of different parts of the data presented by Golvin that are crucial for calculating seating capacity, namely the dimensions of the arena and the dimensions of the amphitheatre as a whole. These are used to calculate the surface area of the *cavea,* the seating sections of theatres and amphitheatres, which is then used in the method discussed below.[108]

- A working average for the depth of an individual seating tread (*gradus)* is about 0.70m. A working average for the width of seating space allocated per seated spectator is about 0.4m. This means that a spectator would occupy roughly an area of around 0.28m². The space allocated to seating in the *cavea* would never have been 100%, as some of that space would have been taken up by stairways and radial circulation aisles. Thus, we can assume that around 90% of the *cavea* would have been made up of seating. So by dividing the surface area of the *cavea* devoted to the seating by the amount of space

[106] Witcher 2008: 286-288.
[107] Bomgardner 2000: 234. Also see Montali 2015: 280-281.
[108] Bomgardner 2000: 20 and 234.

allotted per seated spectator, we can get a quick and consistent estimation of the seating capacity of any amphitheatre.

The best way to demonstrate the above method is by working through the data of an amphitheatre and going through the calculations to produce a seating capacity of the said amphitheatre. The equations that Golvin provides us with are shown below:

$A \times B \times \pi \div 4 = St$

$a \times b \times \pi \div 4 = Sa$

$St - Sa = Sc$

$Sc \div 100 \times 90 \div 0.28 = Ca$

When:

A = Large axis of the amphitheatre (metres)

B = Small axis of the amphitheatre (metres)

a = Large axis of the arena (metres)

b = Small axis of the arena (metres)

Sa = Surface area of the arena (metres ^{2})

St = Total surface area (metres ^{2})

Sc = Surface area of the *cavea* (metres ^{2})

Ca = Estimated capacity

It is worthwhile working through an example using Golvin's equations to show how they work. This is shown below with the military amphitheatre at Carnuntum (a plan can be seen below) as an example:[109]

[109] Golvin 1988: 286. Also see Appendix VI, 'Pannonia Superior', PAN SUP #2.

Amphitheatre – Carnuntum Military Amphitheatre

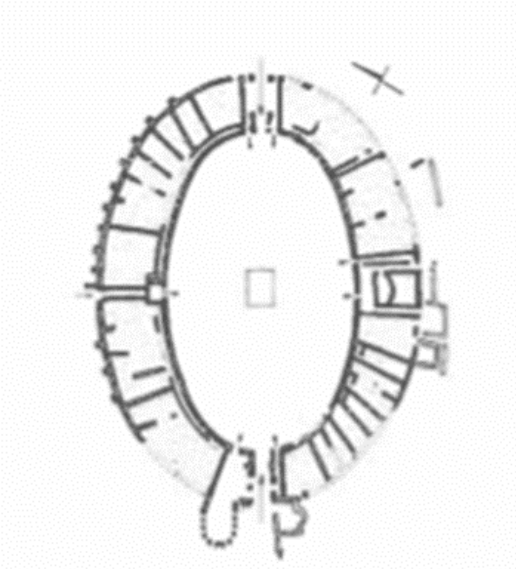
98 x 76 x $\pi \div 4 =$ 5,850m²

72 x 44 x $\pi \div 4 = 2{,}488\text{m}^2$

5,850m² $- 2{,}488\text{m}^2$ = 3362m^2

3362 m^2 ÷ 100 x 90 ÷ 0.28 = 10,806

Figure 1: Plan of Carnuntum's Military Amphitheatre



For Carnuntum's military amphitheatre, Golvin states that the capacity is 8,343. The calculations provided above use the same dimensions as Golvin, and the equation is corroborated by Bomgardner and Montali too.[110] This suggests that there are problems within Golvin's work. Laurence et al pointed to some of the issues by stating that, '[Golvin's] estimates may not be perfect, but they demonstrate the difference'.[111] However, they offer no further discussion of the issues within Golvin's estimates. One example of the issues

[110] Bomgardner 2000: 234 and Montali 2015: 280-281.
[111] Laurence *et al* 2011: 263.

present in Golvin's work is the omission of the π symbol from his calculations of both the surface area of the arena and from the surface area of the whole amphitheatre in tables 28-32.[112] This crucial error requires the user to check all of the data presented within the aforementioned tables.

We can regard Golvin's data for the general dimensions of amphitheatres as largely correct as, where they exist, they are corroborated by later surveys.[113] The calculations that Golvin used are also used by Bomgardner, but there are a number of differences between their suggested estimates of a number of amphitheatres.[114] For instance, Bomgardner and Golvin state that the total size of the *cavea* at Bararus as 3779m^2 and 3778m^2 respectively, but the seating capacities that they both give are markedly different. Bomgardner's seating capacity estimate is c.12,100 while Golvin's is 9445.[115] The capacity estimate that I have calculated, using Golvin's *cavea* size, (and by following the same equations as both academics) is 12,144.[116] Due to the differences between Bomgardner and Golvin, and the fact that Bomgardner only covers the amphitheatres of North Africa, it is imperative that recalculations and cross-referencing with other sources should be undertaken for this thesis to diminish any inaccuracies within the data.

Capacity estimates made using the above method is clearly not an exact science and the potential caveats to the method need to be noted. For example, the seating space allocated per spectator may have differed from amphitheatre to amphitheatre, so instead of 0.40m

[112] Golvin 1988: 284-288. Also see Bomgardner 1993: 382.
[113] Welch 2007, Wilmott 2012 and Cabello *et al* 2009.
[114] See for example both Bomgardner 2000 and Golvin 1988 on Lepcis Magna.
[115] Bomgardner 2000: 157-158. Also see Golvin 1988: 288.
[116] See Appendix VI, 'Africa Proconsularis', Hackett No. AP #3

per spectator, some amphitheatres may have had seats which occupied 0.45m or 0.50m. Recently, Montali has addressed the potential for different sized seating in his calculations for the seating capacity of the amphitheatre at Sabratha, showing that a *locus* of 0.40m gives a capacity of 18,148, while a *locus* of 0.50m gives a seating capacity of 14,532.[117] However, it must be stated that Montali's calculations have been based upon the exact measurements of each row of seating throughout the *cavea* of the Sabratha amphitheatre, which while clearly allowing for the most accurate calculation of seating capacity, is impossible in this present work, due to both space and lack of such precise data for every amphitheatre considered. A further potential caveat is the consideration of whether the spectators were standing or sitting, and whether this could affect the capacity estimate. Bomgardner suggests that 'the upper limit for a standing-room only, packed house can only be guessed at, must be at least 10-20% above the seating capacity estimate'.[118] While this is an interesting proposition, it is somewhat difficult to imagine that a standing person takes up a considerably smaller space than a seated spectator, as well as to imagine spectators standing across the whole day of spectacles, which could run from mid-morning to the evening.[119] Additionally, the 90% of the cavea dedicated to seating suggested by the above method may have not been the case for every amphitheatre, but for the purposes of this study, it is important to work with averages in order to be able to properly make comparisons between all of the amphitheatres of the Latin West, rather than a select few.

[117] Montali 2015: 285-291.
[118] Bomgardner 2000: 62.
[119] While one could draw comparisons to the 'standing-only' football grounds of the pre-Hillsborough disaster era (pre-1989), football spectators could expect to stand for perhaps a maximum of three hours, as opposed to the potential nine or ten hours a spectator at an amphitheatre could expect.

2.4: METHODS OF COMPARING CAPACITY ESTIMATES AND POPULATION ESTIMATES

The core of this thesis is to try and attempt to determine levels of popularity through seating capacity estimates for amphitheatre spectacles at a regional and at a more localised level, such as at a handful of neighbouring urban sites. This is not to say that capacity estimates and their relationship to population estimates serve as 'absolute' markers of popularity. Instead, they should be treated as 'partial' markers, allowing us to suggest at levels of popularity rather than giving us absolute truths, which can never be ascertained.

One of the clearer anomalies that stand out is where there are considerable differences between the capacity estimate of an amphitheatre and the population estimate for its corresponding urban site. One of the ways in which these differences can be analysed is by looking at the relationships between sites with amphitheatres whose capacities far exceed the local population levels, and neighbouring sites with no current archaeological evidence of having an amphitheatre. This can be done by building on the work of numerous scholars on connectivity within the Roman world, such as Keay, Scheidel and Benefiel.[120] Benefiel points to *edicta munerum* that suggests that people of all social classes travelled from their hometown to be a spectator at a neighbouring town's spectacles.[121] I intend to build on the clear cultural links that Benefiel identified, and will show this by analysing other areas of the empire in which the anomaly discussed above appears.

[120] Keay and Earl 2011: 276-316. Also see Scheidel 2014: 7-32 and Benefiel 2016: 441-458. For example, Keay and Earl's project, 'Urban Connectivity in Iron Age and Roman Southern Spain', attempts to understand the social, economic and geographical relations between some 195 towns and nucleated settlements in central and western Baetica, from *c.* 500 BC and AD 200.
[121] Benefiel 2016: 441-458.

2.5: 'GOLVIN' AND 'HACKETT' NUMBERS

In his work, Golvin gave each of the amphitheatre a unique number, which have subsequently been referred to as 'Golvin numbers'. Golvin ordered the amphitheatres in a vaguely chronological manner, and are numbered as such. While there is some logic behind this decision, in reality it is a problematic method.

An issue with this method occurs when Golvin gives the same amphitheatre multiple entries. For example, Golvin defines the amphitheatre at Carthage as having two distinct phases: Phase 1 is Golvin #95, while Phase 2 is Golvin #174. The numerical distance between both entries can be attributed to the chronology of both phases: Phase 1 is dated between 27BC and AD 14, while Phase 2 is dated between AD 100 and AD 200. Clearly, this makes it more difficult than it should be to compare the data for both amphitheatres.

Additionally, Golvin's numbering method makes it considerably difficult to compare amphitheatres from the same province/region. A good example of this is presented in the table (figure 2) below, which shows the 'Golvin Numbers' of some of the 2nd century amphitheatres of Africa Proconsularis:

Figure 2: Golvin Numbers for Africa Proconsularis

Amphitheatre	Golvin Number
Acholla	#118
Leptiminus	#114
Utica	#61
Thapsus	#185
Carthage (Phase 1)	#95

To be able to overcome these issues, I have implemented a new numbering system. This system (from now on referred to as Hackett Numbers) will be formatted in the following way:

- Hackett Numbers will define each province/region that the amphitheatre is situated within. This will be done by either using the initials or a shortened version of the name of the province/region.
- Hackett Numbers will be sorted by alphabetical order.
- The numbers will start afresh with each new province.

This system allows for any additional amphitheatres to be added into this database, though not in alphabetical order. However, this is arguably a minor annoyance and would not detrimentally affect the database.

2.6: DETERMINING A SUITABLE METHODOLOGY

This chapter has analysed the various methods of calculating urban populations, rural populations as well as the most efficient way to calculate amphitheatre capacities, which could be used to meet the aims of this thesis.

In terms of calculating urban populations, the method which this thesis will use is the 'area x density method'. This method is the 'least problematic' method for calculating urban populations, as well as being able to be used with large amounts of data, as is the case in this thesis. The population densities used to calculate urban populations in this thesis have been derived from previous research, especially Wilson 2011,[122] and will utilise the same

[122] Wilson 2011: 161-195.

density modifier for the entirety of a province (though the modifier may change from province to province[123]), so as to provide a more objective analysis. Though this method is not without its problems, alternative methods, such as estimating populations based on excavations of cemeteries or daily delivery volumes of aqueducts, have been shown to be largely unworkable.[124]

The method which this thesis will use to calculate rural populations is through giving rural sites a standard population density per km² (depending on site type), which can then be extrapolated to create population estimates for rural areas.[125]Any calculations of rural populations made in the detailed analyses that will come later in this thesis will largely be reliant on previous works, such as Witcher and Goodchild for Etruria and the *suburbium* of Rome, or Ponsich for Baetica.[126]

The method that this thesis will use for calculating seating capacity is the method used by Golvin and Bomgardner.[127] This method is the most efficient way to calculate seating capacities. A drawback with this method is that it assumes that on average, 90% of the *cavea* was dedicated to seats; in reality, this may not apply to every amphitheatre.[128]

[123] Hanson and Ortman's 2016 article (Hanson and Ortman 2016: 301-324.) provides useful evidence for population density modifiers throughout the Roman world by examining the archaeological evidence from residential areas of cities and the size of houses/rooms.
[124] Wilson 2011: 170-171.
[125] Witcher 2008: 283.
[126] For Etruria and the *suburbium* of Rome, see Witcher 2005a: 120-128 and Goodchild 2007: 331-332. For Baetica, see Ponisch 1974, 1979, 1987 and 1991.
[127] Golvin 1988: 380-381. Also see Bomgardner 2000:20 and 234.
[128] Bomgardner 2000: 234.

CHAPTER 3: QUANTIFYING POPULARITY: THE CASE FOR REGIONAL AMPHITHEATRES

A prominent pattern within this data set is those sites where the capacity of the amphitheatre exceeds the respective town or city's population levels.[129] These irregularities have been noted before, but largely on an independent basis or with a particular focus on a small geographical area.[130] Furthermore, there has been little in the way of classification of these 'oversized' amphitheatres. The importance of provincial infrastructure as a means to facilitate travel, regional economies and the connectivity between a town and its rural community are clear factors for the 'oversizedness' of the amphitheatres, which I will discuss in further detail below. These aforementioned factors will be considered throughout this chapter in the form of three separate case studies.

3.1: DEFINING 'OVERSIZED' AMPHITHEATRES

Before the dataset is examined, it is important to offer a definition for the phenomena of 'oversized' or 'regional' amphitheatres, as well as classifying it within the overall picture of amphitheatre studies. As Bomgardner pointed out, the field of amphitheatre studies requires the continuous study of 'families of monuments' so as to progress towards a deeper understanding of amphitheatres both architecturally and culturally.[131] The

[129] See Appendix IV in general.
[130] For example, Bomgarnder 2000: 40-45. Furthermore, Benefiel (Benefiel 2016: 441-458.) briefly discusses the 'oversized' amphitheatres of Campania. She also hypothesises on the possibility of 'regional' amphitheatre (though she does not call them 'regional'), suggesting that games in the amphitheatre would draw in residents of the nearby countryside as well, citing the evidence for electoral *programmata* and advertisements for gladiatorial games.
[131] Bomgardner 1993: 387-388.

amphitheatres under discussion here have not previously been a part of an extended study, nor given a 'family' name, which this chapter will attempt to rectify.

The term I have assigned this 'family' of amphitheatres is 'regional amphitheatres'. From the analysis conducted below, we can hypothesise that the amphitheatres under discussion were intended not just for the urban settlements in which they were constructed, but for the *territorium* or the *conventus* of said urban settlement, and potentially the *territorum* of other nearby towns and cities. 'Regional' should therefore not be considered to be a 'static' term. It could be argued that there were different levels of 'regional' amphitheatres; some 'regional' amphitheatres could have been intended to have a larger 'catchment' area than others. In the context of 'regional' amphitheatres, 'catchment area' describes the geographical area from which an amphitheatre could have drawn its audience. So, for less 'oversized' amphitheatres,[132] the 'catchment area' would have likely only been comprised of that urban settlement's territory or small portions of neighbouring territories. For the more 'oversized' amphitheatres[133] we should consider their respective 'catchment areas' to comprise their own territories and the populace of neighbouring territories. We have to bear in mind, however, that 'regional' is a commonly used term within the study of antiquity, and the term does not necessarily immediately lend itself to describing high capacity amphitheatres. Another term that could be used in this analysis is 'oversized'. While not a perfect definition, it illustrates the difference between an amphitheatre's estimated seating capacity and its corresponding urban population, which is the core of the

[132] i.e. those amphitheatres where the capacity-population difference is generally lower than 50%, though there will be some outliers.
[133] i.e. those amphitheatres with a high capacity-population difference.

current analysis. For want of better terminology, both 'regional' and 'oversized' will be used to describe the amphitheatres within this chapter.

3.2: THE PARAMETERS OF THE DATA

Before any analysis can be undertaken on the data, we have to determine what would constitute a data point fitting within the 'oversized' categorisation. Out of 250 amphitheatres currently known in the Latin West, there are 111 (44.4%) amphitheatres where the capacity estimate exceeds the local population estimate. The largest 'capacity to urban population' difference can be found at Metz, where the capacity exceeds the urban population estimate by 29,221 (73.75%), while the smallest 'capacity to urban population' difference can be found at Agbia, where the capacity exceeds the population estimate by 4 (0.14%).[134] Plainly, the efficacy and usefulness of the model used in this chapter can be called into question here due to the closeness the Agbia population estimate and the Agiba amphitheatre size estimate. Given the closeness of both these estimates, we cannot consider categorising Agbia as a 'regional' amphitheatre.[135] However, it must also be stated that any population estimates made in this thesis are not pretending to be either completely precise nor an estimate for a settlement's entire lifespan. To compensate for this fluidity the most practical way to categorise 'oversized' amphitheatres is to include those amphitheatres where the estimated capacity exceeds the population estimate by *at least* 25%, as this percentage would arguably account for population fluidity.

[134] See Appendix IV, Hackett No. GB #3 and Hackett No. AP #2 respectively.
[135] Some of the cities along the Bagradas Valley have relatively small territories, meaning that the population of these territories would be fairly small too. Duncan-Jones 1963: 85-90.

3.3: THE DATASET

By applying the parameters discussed above, I have identified 92 amphitheatres whose estimated capacities exceed the estimated local population levels of their associated town or city by at least 25%.[136] The table (figure 3) below shows the geographical split of the amphitheatres:[137]

Figure 3: Geographical Split of 'Oversized' Amphitheatres

Province/Region	Number of 'Oversized' Amphitheatres	Total Number of Amphitheatres (Possible amphitheatres)
Italia (Mainland)	37	75
Gallia Aquitania	5	14
Gallia Lugdunensis	5	31
Britannia	4	18
Gallia Narbonensis	4	8
Germania Superior	4	10
Hispania Baetica	4	6 (8)
Hispania Tarraconensis	3	8
Africa Proconsularis	2	26
Gallia Belgica	2	6
Hispania Lusitania	2	5
Alpes Cottiae	1	1
Alpes Maritimae	1	1

[136] See Appendix IV. The difference between capacity and population is denoted in its own column.
[137] Data from Appendix IV and Laurence *et al* 2011: 280.

Alpes Poeninae	1	1
Corsica	1	2
Numidia	1	6
Pannonia Inferior	1	2
Pannonia Superior	1	3
Sicilia	1	3

The data concerning Italian (mainland) amphitheatres is clearly the most startling; nearly half of all the amphitheatres in Italy have capacity estimates which considerably exceed the local population estimates of their related urban centres. The situation in Hispania Baetica is also interesting, as two-thirds of the 'confirmed' amphitheatres can be categorised as 'oversized', and evidently requires detailed analysis.

3.4: EXPLAINING 'OVERSIZED' AND 'REGIONAL' AMPHITHEATRES

To be able to explain the 'oversizedness' of these amphitheatres, influencing factors such as regional interactivity, rural population size and local economies have to be considered. These factors have largely been ignored in previous discussions. Additionally, when these factors are considered, they are largely divorced from each other.

A prime example of this divorce is a 2016 chapter by Benefiel on regional interactivity in Campania. Benefiel highlights what she calls a 'cultural network for gladiatorial spectacles' which emerged due to the strong links between the cities of Campania.[138] Her argument is persuasive, but it largely focuses on combining the evidence of advertisements for

[138] Benefiel 2016: 441-458.

gladiatorial games from Pompeii and travel distances between Campanian cities to explain this 'Cultural Network'. Perplexingly, Benefiel does not combine her brief discussion on markets in the region with her discussion of reasons for the cultural network for spectacles.[139] We have to remember that markets were facilitators for travel between settlements, as can be seen in *indices nundinarii* from Campania, Samnium and southern Latium.[140] Additionally, these markets would have pre-dated the amphitheatre spectacles of the region; de Ligt notes that writers of the annalist tradition thought that the *nundinae* of Rome dated back to the time of the kings.[141] This would suggest that the 'cultural networks' that Benefiel describes were in existence prior to the emergence of amphitheatre culture, which in turn co-opted the network. Clearly, it is important to expand the work of Benefiel by examining other regional networks to see if the so-called 'Campanian model' of interactivity was also a common factor within other regions of the empire.

It is, therefore, useful to conduct a number of case studies of regions/provinces where 'oversized' amphitheatres make up a significant portion of the total number of amphitheatres within the region/province. Additionally, it is important to briefly discuss the different factors that will make up each case study: Regional interactivity and connectivity, rural populations and local economies, especially in terms of periodical markets.

3.4.1: REGIONAL INTERACTIVITY AND CONNECTIVITY

[139] Benefiel 2016: 441-458.

[140] *Inscriptiones Italiae, vol. 13.2, nos. 49-54.* These market calendars, apparently all dating from the 1st century AD, reveal the existence of periodic markets in some twenty-five Italian towns. One of these calendars (*Inscriptiones Italiae, vol. 13.2, no.49.)* has holes for pegs, which would have denoted which town or city was holding the next market, as well as on which day.

[141] De Ligt 1993: 112 notes L. Cassius Hemina and Macrobius. *Saturnalia*. 1.16.33. and Morley 1996: 166-174.

Analysis of regional interactivity and connectivity is of crucial importance for the following case studies. Major (and minor) roads systems would have allowed for travel for all levels of Roman society, as Benefiel and others have shown.[142] Additionally, road systems within a region would have seen large amounts of trade (and economic growth) and traffic pass through a town or city. These road systems also furthered the integration of rural and urban economic systems, and therefore promoted the movement of traffic between urban and rural settings.[143] There are some caveats to this positivity; the development of infrastructure by the state may have marginalised 'unconnected' urban centres(and still unconnected rural areas).[144] Furthermore, Witcher has suggested that new roads were likely not instantly effective and separately Hitchner has questioned whether roads drove growth or reflected it. [145] Despite the possible negative impacts of increased connectivity, they do not outweigh the positive economic effects that connecting urban and rural communities produced.[146]

We should also briefly consider the importance of political factors as a motivation for the movement of people. Rural populations would likely have been aware of political elections and/or events being held in their local town councils,[147] especially if Latin rights had been conferred upon them.[148] We must assume that rural populations, especially the wealthy,

[142] Benefiel 2016: 441-458. Also see Hitchner 2012: 222-234.
[143] Scheidel 2014: 27-31. Hitchner (Hitchner 2012: 222-234) has argued that the relationship between roads and economic integration and growth is likely to be a positive one.
[144] Witcher 2017: 39-40. New connections may have drawn people away from existing routes and regions, leaving the original connections more isolated than before.
[145] Hitchner 2012: 222-234. Hitchner cites the territory of Cillium (Modern Tunisia) as an example of where it is unclear whether roads drove growth or merely reflected it. The massive investment in oil and other goods in the region could certainly be seen as evidence of the roads reflecting the growth of the economic importance of the region. However, Hitchner also notes that some of the roads clearly follow earlier routes. A similar situation can be seen at Roman Thugga, which is analysed in De Vos 2013: 143-218.
[146] Hitchner 2012: 225.
[147] Haley 1996: 283-303. We should also consider the existence of the 'rural' voting tribes and the potential for certain wealthy rural individuals to be apart of said tribes.
[148] Haley 1996: 283-303.

would have travelled into their local urban centres to take part in political activities; we can further assume that amphitheatre spectacles were presented during these political events, as they would have been funded by the same elites who may have been up for election.

Additionally, we have to consider the 'easiness' of travel, especially in terms of time-distance and time-cost. In a 1989 work, Bekker-Nielsen analysed the inter-centre distances between cities and towns of Roman Italy and Roman Gaul: the average inter-centre distances of said areas are shown below:[149]

[149] Bekker-Nielsen 1989: 20-24. Figure 2 of this thesis (below) is an amalgamation of data from Bekker-Nielsen's work. See table 5.2, 5.3 and 5.4 for original tabulation and data. Also see Bekker-Niesen's appendices for the cities that he includes in the aforementioned tables. Witcher 2017: 37-41. An example of the lack of instant efficiency can be seen in South Etruria during the 3rd and 2nd centuries BC. A number of long-distance consular roads were constructed (e.g. Via Flaminia, Cassia, Amerina). These roads were integral to the establishment of military and political control in the region, but it is difficult to associate these roads with any significant local economic growth within four or five generations of their construction (if measured, for example, by increasing rural settlement density).

Figure 4: Inter-Centre Distances of Cities (Sorted by Average Inter-Centre Distance)

Area	Number of Cities	Average Inter-centre Distance (km)	Range (km)
Regio I (Latium, Campania)	71	11.0	5-21
Regio VI (Umbria)	40	13.0	5-27
Regio VII(a) (Southern Etruria)	23	13.5	8-28
Regio V (Picenum)	19	13.6	7-25
Regio II(a) (Southern Apulia)	18	15.2	10-25
Regio VIII(a) (via Aemilia Corridor)	14	15.3	6-20
Regio IV(b) (Northern Samnium)	28	15.8	8-27
Regio IV(a) (Southern Samnium)	8	22.8	15-28
Regio II(b) (Remainder of Apulia)	21	23.3	19-37
Regio VIII(b) (Remainder of Aemilia)	8	24.9	17-39
Regio IX (Cispadana, Liguria)	16	26.0	14-56
'Central' Narbonensis	18	29.0	21-43
Regio VII(b) (Northern Etruria)	16	30.8	10-49
Regio III (Lucania, Bruttium)	21	35.0	20-57
Regio XI (Transpadana)	12	35.6	24-55
Regio X (Venetia)	19	35.7	20-60
South/West Belgica	17	55.6	37-84
'Periphery' of Narbonensis	8	56.8	43-76
'Central' Lugdunensis	20	57.7	36-87
South/East Aquitania	7	71.0	64-81
'Periphery' of Lugdunensis	5	100.4	93-129
North/West Aquitania	8	107.4	89-140
North/East Belgica	7	107.4	92-122

From the data above, we can assume see that travel between cities was more accessible for the populations of regions with low average inter-centre distances, particularly those with an average inter-centre distance lower than 20km. We can therefore assume that the development of a 'cultural network' of amphitheatre spectacles would have been aided by the density of these urban networks. Conversely, it is likely that for the regions with a high average inter-centre distance (especially those where this figure was above 50km), this diffusion of cultural ideas would have been considerably more difficult (though not impossible).

3.4.2: RURAL POPULATIONS

The importance of spectacles to rural populations has been widely overlooked, and there is a tendency to detach elements of rural society from urban society; an example of this is Zuiderhoek's suggestion of a 'cultural rift' between urban and rural inhabitants of the Greco-Roman world.[150] Others have recently mused on the concept of a 'global countryside': that is, a rural landscape which becomes increasingly integrated with both the urban core and other rural areas over time.[151] It is highly improbable that the rural populace were not fans of spectacles. A poem by Latin poet Calpurnius Siculus includes a rural peasant who had travelled to Rome to witness spectacles in the arena; this is certainly indicative for certain attitudes, although we have to consider how far this reflects a

[150] Zuiderhoek 2017: 42-44.

[151] Woods 2007: 492-494, and Woods 2009: 849-858. Also see Witcher 2017: 30-50. The concept of a 'global countryside' is intended to be 'a device through which to think about the integration of rural communities in order to formulate other possible questions and explanations when thinking about the character of the rural landscapes of Roman Italy, and the empire more generally'.

common reality.[152] Furthermore, the fact that 'most people in classical antiquity lived in the countryside, whether in villages, hamlets or isolated farms' only reinforces the need to consider rural populations in any analysis of popularity.[153]

In this thesis, the argument that 'oversized' amphitheatres were intended not just for the urban populace but also the rural populace will be made. The best way to understand the density of rural populations in a specific area is through intensive field surveys or field walking.[154] There have been a series of major multi-period surveys across the Mediterranean since the Second World War, such as the South Etruria Survey, conducted by John Ward-Perkins and the British School at Rome from the 1950s to the 1970s, or the Ager Tarraconensis Project, which ran between 1985-1990.[155] Though these surveys can have their issues,[156] they are crucial in revealing patterns of rural settlement across the Roman world, and therefore have to be carefully considered when analysing the importance of rural populations as an influencing factor for the construction of 'regional' amphitheatres.

[152] Calpurnius Siculus. *The Ecologues.7.* Corydon, the aptly named shepherd, spends twenty nights away from this home village and describes to his friend, Lycotas, who had stayed in the countryside, what he had seen in the arena at Rome. It is unclear from the poem how long it had taken Corydon to travel to Rome, how long he had stayed there, and how long it had taken for him to travel home. However, it is still a useful piece of evidence for rural populations travelling to urban centres to experience amphitheatre spectacles. The date at which Calpurnius Siculus was writing is uncertain: Townend (Townend 1980: 166-174.) suggested that the *Eclogues* dated from the reign of Nero (AD 54-68), Mayer (Mayer 1980: 175-176.) rooted Calpurnius firmly in the 1st century AD, while Champlin (Champlin 1978: 95-110.) suggested the reign of Severus Alexander (AD 222-235).

[153] Barker 1991:1.

[154] Cherry 1983: 375-409. Also see Barker 1991: 3.

[155] Barker 1991: 1-3. Also see Potter 1979 for the South Etruria Survey, Carreté, Keay and Millett1996 for the Ager Tarraconensis Project. Additionally see Keller and Rupp 1983 for a survey of Mediterranean surveys, listing almost 100 survey projects.

[156] There are a fair number of issues which can arise in surveys, some of which are described in Keller and Rupp 1983: 59-72, and Renfrew and Bahn 2016: 73-108. One such issue could be described as 'walker bias', in which field walkers 'have an inherent desire to find material, and will therefore tend to concentrate on those areas that seem richer, rather than obtaining a sample representative of the whole area'.

3.4.3: PERIODICAL MARKETS

Analysis of local economies in the case studies in this chapter will predominately focus on the existence of periodical markets (*nundinae*), as well as discussions focussing on the rural economies which predicated these markets. It is important that these economic factors are considered, as one of the incentives (perhaps the primary incentive) for rural populations to travel would have been economic in nature.

It could be argued that rural subsistence-based farmers would not have travelled to local towns or cities just to watch spectacles, as the 'reward' (in this case, leisure) would not have justified the 'cost' (such as time spent travelling, the monetary cost of travel/sustenance).[157] However, the issue of distance also depends on the quality of regional infrastructure and the 'accessibility' of the natural topography; if the roads were of high quality and the topography was relatively flat (and could be described as 'non-arduous'), then we can imagine that rural peasants were more likely to travel further distances to experience amphitheatre spectacles.[158] We also have to remember that we are not talking about large distances in those urban centres with small territories, such as Olaurum or Carula in Baetica.[159] De Ligt has shown that rural populations would have travelled regularly to

[157] Bintliff 2002: 216-217. Bintliff notes the 'cost incurred… of carrying rural produce to market, selling at returning home; since most such producers [were] peasants, the cost comes down to their time taken off labour in the field or rural workshop… and the need to avoid a costly and risky overnight stay away from home'. Morley (Morley 1996: 108-114.) cites Cato and Varro emphasising the importance of buying farms close to local markets, as this would boost the profitability of said farm. Elsewhere, De Haas (De Haas 2017: 54-56.) argues the cost of distance as being the 'primary ordering principle in economic exchange'.

[158] Some of the *edicta munerum* preserved at Pompeii promote games in other Campanian cities which are some 40 km from Pompeii, such as Puteoli and Cumae. See Benefiel 2016: 453-456.

[159] Keay and Earl 2011: 304-308. The size of the territory of Olaurum is 5,250ha, which equates to 20.27 square miles, while the territory of Carula is 11,462ha, equating to 44.25 square miles.

periodically held markets, especially if they were connected to religious festivals (which could be intrinsically linked to public entertainment).[160]

De Ligt argues that there is a distinction in the frequency of markets. The lowest level of low-frequency periodic market that he categorised are 'local fairs': these are defined by De Ligt as small scale rural affairs, further defined by their limited duration and small catchment areas, usually extending no further than 50 km in any direction.[161] This 50 km distance for rural fairs is somewhat higher than what other academics have suggested, even for urban 'market-catchment' radii: for example, Hodder and Millett suggested that in Roman Britain, the market-catchment radius was more likely to be 15-20 km.[162] This may be a case of over-compensation by de Ligt, as it is likely that urban markets would offer greater incentives than rural markets.[163]

De Ligt has also shown that there are regional fairs and interregional fairs, which are significantly more economically impactful and could have been active of 1-2 weeks to 3-8 weeks respectively.[164] Regional and interregional fairs would have taken place in the larger urban sites under discussion in this chapter and would have likely been a more attractive

[160] De Ligt 1993: 14-15, 78-82.
[161] De Ligt 1993: 15. De Ligt does not offer specific archaeological evidence here. However, he notes that he 'derived some inspiration' from the following publications: Everitt 1967: 537-542. Grohmann 1969: 58-59, 115-116. Rozman 1976: 117-122. Margairaz 1988: 101-114. These 'local fairs' would apply to the smaller urban sites with 'oversized' amphitheatres such as Libarna or Carsulae, which have population estimates of 4,000 and 3,000 respectively.
[162] Hodder and Millett: 1990: 25-44. Also see Hodder and Hassall 1971: 390-407 and Hodder and Orton 1976.
[163] Greene 1986: 47. Greene argued that urban market places provided significant opportunities for rural consumers and producers to obtain or sell typically unavailable goods and services to a vastly increased clientèle than at a smaller rural market, irrespective of their social or cultural differences.
[164] De Ligt 1993: 15.

proposition for rural populations than local fairs, namely because of the varied economic benefits that could be gained from attending these urban-based markets.[165]

Now that we have discussed the elements that will be included in each case study, we can begin to analyse the 'oversized' amphitheatres in each chosen region and assess the possibility of those amphitheatres being described as 'regional'.

3.5: CASE STUDY ONE: CAMPANIA

Campania has readily been acknowledged as a hot-bed for amphitheatre culture, from the Late Republican period onwards.[166] This is for a number of reasons. First, some scholars argue that gladiatorial combat originated in Campania on the basis of literary accounts and representations of single combat in 4th century BC Osco-Samnite tombs and on South Italian vase paintings.[167] The second, and arguably more secure reason is that the earliest stone-built amphitheatres can be found in Campania.[168]

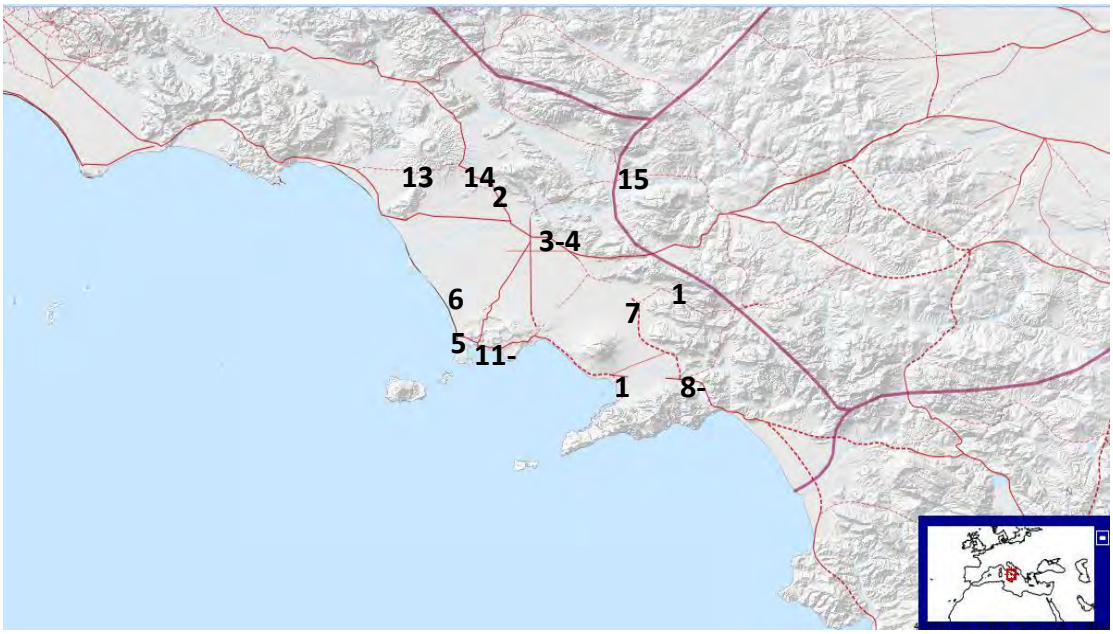
There are currently sixteen documented amphitheatres in Campania, three of which can be described as 'oversized'. Though this is a small percentage, it has to be considered that the capacities of eight of these amphitheatres are currently unknown. It is therefore possible

[165] Witcher 2017: 28-50. Also see De Haas 2017: 62.
[166] Welch 2007: 15-50.
[167] Welch 2007: 11-14. Welch refers to this as the 'Osco-Samnite Hypothesis'. Livy and Strabo both referred to the Campanians who gave gladiatorial games in a secular context (in this case banquets), which is in stark contrast to the Romans, who originally gave games in a religious, funerary setting. There is some archaeological evidence to suggest that gladiatorial combat originated in southern Italy in the form of 4th century BC pottery and tomb paintings, though Welch notes that the archaeological evidence is silent about Osco-Samnite gladiators after this period. Also see Ville 1981: 19-35.
[168] Bomgardner 2000: 58-60. Also see Golvin 1988:

that some of these amphitheatres could indeed also be categorised as ‘oversized’ or ‘regional’. These amphitheatres can be seen on the map (figure 5) below:

Figure 5: Map of Italia Reg. I Campania

Italia Reg. I Campania



1 – Abella 2 – Cales 3-4 – Capua 5 – Cumae 6 – Liternum 7 – Nola 8-9 – Nuceria 10 – Pompeii 11-12 – Puetoli 13 – Suessa Aurunca 14 – Teanum Sidicinum 15 - Telesia

3.5.1: CHRONOLOGY AND DENSITY MULTIPLIERS

Of the three 'oversized' amphitheatres of Campania, Pompeii can be considered the earliest, dating to c.70BC.[169] The leading hypothesis for the construction date of the amphitheatre at Telesia is slightly later in the 1st century BC.[170] The third 'oversized' amphitheatre, Puetoli (Phase 2), has been dated to between the Flavian period (AD69-96).[171] Of the sixteen

[169] Golvin 1988: 33-37. Also see Welch 2007: 196-199. and Bomgardner 2000: 39-54.
[170] Welch 2007: 227-230.
[171] Golvin 1988: 38.

amphitheatres in Campania, twelve can be roughly dated to some point in the 1st century BC.[172]

The urban population density multiplier used for this case study will be 200/ha, which allows for population estimates that sit in the middle of the low-high estimate debate.

3.5.2: RURAL SURVEYS AND RURAL POPULATIONS

The two major field surveys that have been undertaken in Campania are the Northern Campania survey, undertaken single-handedly by Arthur, and the *Carta Archeologica della Campania*, which has been conducted by the Seconda Universitá degli Studi di Napoli.[173] The former suggests at an upward trend of rural settlement density from the Late Republican to the Early Imperial period, in an area which is approximately 100 km² centred on Monte Massico.[174] The latter concerns a larger geographical area, which is part of a wider project to provide an 'archaeological map' for Campania as a whole.[175] The overall picture of rural settlement in Campania is difficult to assess, as there has yet been no interpretive synthesis published, neither is the field research near completion.[176] Despite this, we can see that there is some increase in rural settlement density between the late Republican and early Imperial period, especially in Northern Campania, which may be indicative of Campania as a whole.[177]

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[172] The amphitheatres purported to have been constructed in the 1st century BC are (in alphabetical order): Abella, Cales, Capua (Republican Period), Cumae, Liternum, Nola, Paestum, Pompeii, Puteoli (Phase 1), Suessa Aurunca, Teanum and Telesia. The main source for the dates of these amphitheatres is still Welch 2007: 72-100, 192-252.
[173] Arthur 1991; Quilici and Quilici Gigli 2004a, 2004b and 2006.
[174] Launaro 2011:133-135.
[175] Quilici and Quilici Gigli 2006: *passim*. Also see Launaro 2011: 135-137.
[176] Launaro 2011: 135.
[177] Launaro 2011: 133-137. See tables 5.22 and 5.23.

While both surveys are certainly useful pieces of evidence for rural site and rural population density, the areas surveyed do not fully encompass the cities which have 'oversized' amphitheatres.

The size of the rural population of the *Ager Campanus* has been linked to the agricultural strength of the region.[178] This sense of strong agricultural performance is also rooted in the significant praise for the fertility of Campania from ancient authors such as Strabo and Pliny the Elder.[179] The territory and population of Pompeii have been the focus of heated debates, likely because of the archaeological importance of Pompeii for our understanding of the Roman world, leading to various different figures being suggested by numerous scholars. Focusing largely on Pompeii, Jongman used a combination of literary descriptions, geography and archaeological evidence to attempt an estimation of both the total area of Pompeii's territory and its population.[180] In terms of territory sizes, three different figures have been given: 110-80 sq.km by Nissen,[181] 100 sq.km by Beloch[182] and 200 sq.km by Jongman.[183] The dramatic increase in size in Jongman's estimation is due to his including of the entire plain south of the river Sarno, which Nissen and Beloch omitted from their calculations.[184] Jongman's estimation of 200 sq.km has however been dismissed by Purcell, who suggested that the economic hinterland of Pompeii was more likely to be around 130

[178] De Simone 2016: 22-52.
[179] Pliny the Elder *Natural History* 3.60. Also see Strabo. *Geographica.* 5.4.3
[180] Jongman 1988: 104-112.
[181] Nissen 1877: 375.
[182] Beloch 1890: 18 and 456.
[183] Jongman 1988: 109-112.
[184] Jongman 1988: 106-107. Jongman does not fully explain the reason why Beloch and Nissen excluded the plain south of the river Sarno, but notes that 'This [omission] may be correct politically (it is, however, quite uncertain), but economically it makes little sense'.

sq.km.[185] Recently, De Simone suggested that the size of Pompeii's territory was roughly 121 sq.km.[186] The debate over the size of Pompeii's territory is a clear indication of the difficulty of determining rural population levels, and any estimate of rural population made in this thesis must only be regarded as an estimate.

The estimates for the population of the urban core of Pompeii also differ from scholar to scholar;[187]

Figure 6: Pompeii Population Estimates

Scholar	Urban Population Estimate
Nissen[188]	20,000
Beloch[189]	15,000
Eschebach[190]	8,000-12,000
Russell[191]	7,000-7,500
De Simone[192]	9,600-16,000
Flohr[193]	7,500-13,500

If we use the 'area x population density' method, the urban population estimate for Pompeii is 12,000.[194] Compared with the various estimates discussed above, my estimate of 12,000

[185] Purcell 1990: 112.
[186] De Simone 2016: 9-12.
[187] Strangely, in his discussion of the different estimates for the urban population, Jongman does not offer his own, though his caution is perhaps somewhat justified because of the heated debate over the archaeological evidence from Pompeii.
[188] Nissen 1877: 379.
[189] Beloch 1890: 274.
[190] Eschebach 1970: 66. Eschebach then revised this to 8,000 to 10,000 in 1975.
[191] Russell 1985: 1-8.
[192] De Simone 2016: 9-12.
[193] Flohr 2016: 45-96. Flohr includes the approximately 10ha occupied by the 'suburbs' of Pompeii in his estimation.
[194] See appendix, Hackett No. ITAL CAMP #10.

sits roughly near the average, though my estimate was admittedly made through simpler means than the others as per the parameters of this thesis.

Let us now attempt to estimate the rural population of Pompeii's territory. Jongman argues that if Pompeii's territory measured 200 km² with an average of 180 people per km² (this population density is taken from Beloch[195]), then the total population of both the urban centre and the rural area of Pompeii's territory would be 36,000.[196] This would mean that an urban population estimate of 12,000 equates to 33.33% of the total population of Pompeii's territory. If we compare these figures to the capacity estimate of Pompeii's amphitheatre (29,009[197]), we can see that if the entirety of the urban population attended the amphitheatre, with no 'foreign' or rural visitors in attendance, only 41.37% of the amphitheatre's capacity would have been used. This would lead to a noticeable 'emptiness' in the amphitheatre, one which may have been 'filled' by rural visitors or visitors from nearby urban centres.[198]

[195] Beloch's calculation seems to be on the basis of looking at free populations and comparing them with slave populations. He argues that the population density of Campania is 180 people per sq.km, considering the natural topographical features of the region in the process. See Beloch 1890: 454-460. Hopkins 1978: 68-70 accepts Beloch's figures in general terms. Also see Jongman 1988: 108-110.
[196] Jongman 1988: 112.
[197] See appendix, Hackett No. ITAL CAMP #10.
[198] Tacitus. *Annals.* 14.17 We know from Tacitus' report of the riot in AD 59 at Pompeii that inhabitants of nearby Nuceria travelled to watch the games in Pompeii's amphitheatre. Could the Nucerians have travelled to Pompeii on a regular basis? The fact that no amphitheatre was constructed at Nuceria until at least AD 60 suggests three things. 1) That amphitheatre spectacles were popular enough in Nuceria for fans to travel the c.15km from Nuceria to Pompeii to experience them. 2) That the banning of amphitheatre spectacles at Pompeii for 10 years likely prompted the construction of the amphitheatre at Nuceria. This 'prompting' could have either been solely from the urban inhabitants of Nuceria, or in fact from the inhabitants of Pompeii and Nuceria (and therefore the inhabitants of both city's territories). 3) If amphitheatre spectacles were popular at Nuceria before the construction of the amphitheatre, there may be the possibility that the inhabitants (or town magistrates) did not feel the need to construct an amphitheatre for themselves, considering the closeness of Pompeii and their 'oversized' amphitheatre. If true, this would indicate that Pompeii's amphitheatre was in-fact intended to be a 'regional' amphitheatre. De Ligt (De Ligt 2012: 310) suggests that Nuceria had an inhabited area of 120ha, which would give it a population estimate of 24,000, which is exactly double the urban population estimate for Pompeii. Also see Moeller 1970: 84-95.

The rural population estimates made by De Simone suggest a markedly less populated rural landscape. De Simone makes use of a 'high' and 'low' method to make his estimations: at the low end, he suggests at 0.5 people per hectare, while at the high end he suggests at 1.5 people per hectare.[199] With a territory measuring at 12,070ha (120.7 sq.km), at the low end De Simone argues for a rural population of 6,035, while at the high end this would equate to 18,105 people.[200] If we combine these figures with an urban population estimate of 12,000, we have a combined population of 18,035 or 30,105. Compared to the capacity estimate of the amphitheatre of Pompeii, the 'low' combined population estimate would have occupied 62.17% of the seating capacity, while around 3.78% (roughly 1,100 people) of the 'high' combined population estimate would have been unable to have a seat within the amphitheatre. If we think back to the categorisations for amphitheatres discussed at the beginning of this chapter, we should consider both the 'low' and the 'high' estimate as fitting within said categorisations. The 'low' combined population estimate would suggest that the Pompeii amphitheatre was built not just for the populace of Pompeii's urban core and its territory, but also the populace of neighbouring territories, and therefore fits the categorisation of 'regional'. The 'high' estimate suggests that the amphitheatre can still be considered as a 'regional' amphitheatre, but probably only for its 'local' region (i.e. just Pompeii and its territory).

3.5.3: TRAVEL AND REGIONAL INTERACTIVITY

[199] De Simone 2016: 9-12. See table 1.3.
[200] De Simone 2016: 9-12. See table 1.3.

The importance of regional interactivity in the development of the 'cultural network' of amphitheatre spectacles in Campania cannot be overlooked. Campania was a highly urbanised area; the inter-centre distance between towns could be as low as 5 km, with an average of 11 km.[201] These low distances clearly aided the development of a system of periodic markets (*nundinae*) in Campania, which provided a crucial link between town and countryside.[202]

The periodic markets in the region would have also provided the opportunity for non-economic activities to take place and reach wider audiences, such as spectacles or religious events. Furthermore, our evidence for multi-day spectacles would have likely further encouraged wider audiences to travel to towns across the region.[203] Clearly, the development of major and minor roads would have greatly encouraged movement; these road systems should be considered as equally important in the cultural transmission of amphitheatre spectacles across Campania.

3.6: CASE STUDY TWO: ETRURIA

The region of Etruria is a logical one to compare with Campania. As Welch shows, some of the earliest amphitheatres can be found in both regions.[204] Additionally, Sulla's post-Civil

[201] Bekker-Nielsen 1989: 20-24. It has to be noted that Bekker-Nielsen does not split up Latium and Campania, as this thesis has done, meaning that the average inter-centre distance and range distance between cities may be slightly different.
[202] Benefiel 2016: 441-458. The occasion of market days gave rural populations the opportunity to sell their surplus produce in the towns and cities of Campania.
[203] Osanna 2018: 310-322. The recently uncovered tomb inscription at Pompeii tells of a gladiatorial show involving 416 combatants (208 pairs). This unusually high number of gladiators suggests that the spectacles lasted many days, perhaps across the space of a week. Also see Benefiel 2016: 441-458, especially Chart 22.1.
[204] Welch 2007: 88-90. A hypothesis suggesting that gladiatorial combat originated in the Etruscan period was first formulated in the 19th century, largely drawing on Roman writers who postulated that the historical origins of gladiatorial contests were in fact Etruscan. However, as Wiedemann (Wiedemann 1992: 30-33) points out, there is no supporting archaeological evidence. For Etruscan 'sport', see Bevagna 2013: 395-411.

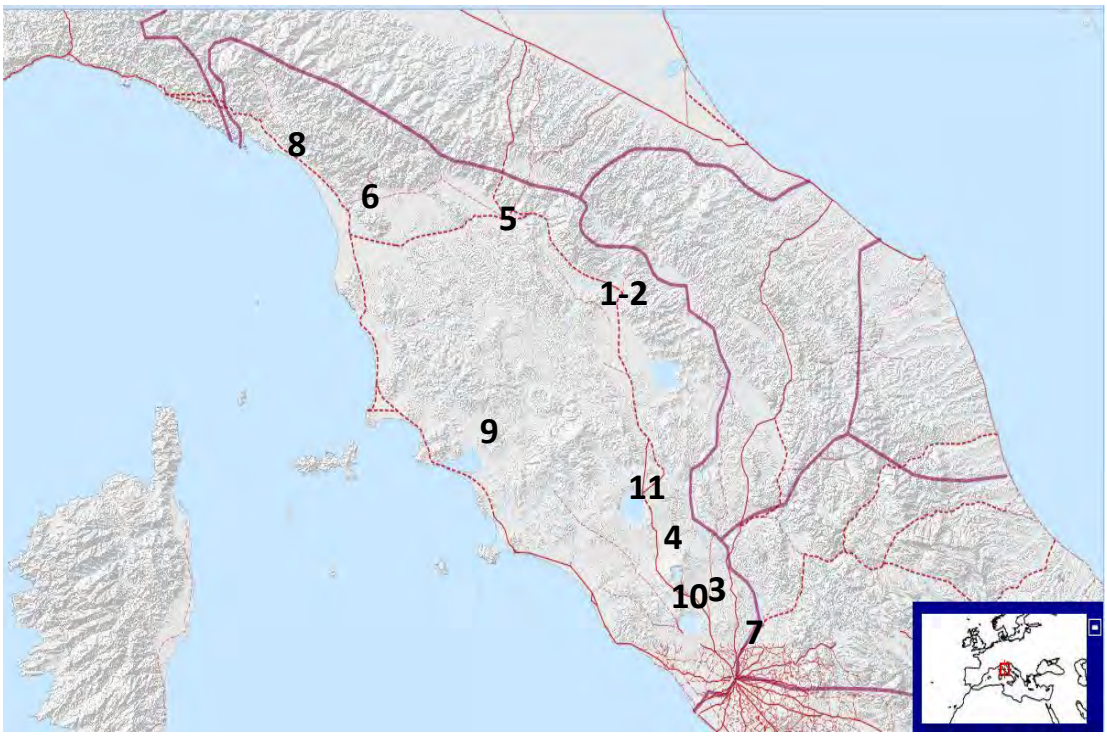
War settlements in 82 BC significantly affected the demographics of both Etruria and Campania, as an influx of veterans settled in new colonies in both regions.[205]

There are nine known amphitheatres situated within Etruria.[206] Five of these nine amphitheatres in Etruria can be described as 'oversized', compared to three of the sixteen amphitheatres in Campania.[207] This might suggest the conscious consideration by the benefactors of the Etrurian amphitheatres to account for (and potentially exploit) the rural population levels when deciding on their prospective amphitheatre's capacity, though it might be explained by other factors as well.[208] The estimated populations of the towns with 'oversized' amphitheatres within Etruria are markedly lower than those in Campania; all of the Campanian towns have estimated populations above 10,000, save Telesia. In Etruria, only the town of Arretium has an estimated population of over 10,000 people (although Lucca does have an estimated population of 9,600). The density per hectare of each region can be considered to be similar, largely due to the similarities in economic and agricultural features, according to De Ligt.[209] The amphitheatres of Etruria can be seen in the map (figure 7) below:

[205] Welch 2007: 89-91.
[206] Golvin 1988: 280-284. Also see Welch 2007: 88-90.
[207] See appendix, Italia Reg. I Campania and Italia Reg. VII Etruria.
[208] The most obvious other factor is that the benefactors were constructing these 'oversized' amphitheatres to display their socio-political standing in local society/across the province. Another factor may be imperial benefaction, especially for those amphitheatres constructed in the 1st and 2nd centuries AD.
[209] De Ligt 2012: 68-71.

Figure 7: Map of Italia Reg. VII Etruria

Italia Reg. VII Etruria



1-2 – Arretium 3 – Falerii Novi 4 – Ferentium 5 – Florentia 6 – Luca 7 – Lucus Feroniae

8 – Luna 9 – Rusellae 10– Sutrium 11 - Volsinii

3.6.1: CHRONOLOGY AND DENSITY MULTIPLIERS

The amphitheatres located at Sutrium and Ferentium are both dated to the Republican period, which suggests an early uptake of amphitheatre culture within the region.[210] The construction of the amphitheatres at Florence, Arretium and Volsinii Veteres have all been firmly dated to the 1st Century AD, and while less securely dated, the amphitheatre at Lucca is suggested to have been built between the second half of the 1st century and the first half of the 2nd century AD.[211] At first glance, these construction dates would suggest at an increased 'desire' for amphitheatres during the 1st century AD in Etruria, however, this also seems to be a direction which was followed across the Italian peninsula and may not necessarily reflect localised enthusiasm for amphitheatre spectacles.[212]

The two 'undersized' amphitheatres in Etruria can be found at Lucus Feroniae and Rusellae; the former is usually dated to the early 2nd century AD, while the latter is dated to the start of the 1st century AD.[213]

The urban population density multiplier used throughout this case study is 200/ha.

3.6.2: RURAL SURVEYS AND RURAL POPULATIONS

For this project, the highly influential South Etruria Survey is perhaps one of the key datasets to show the existence of 'regional' amphitheatres. The recent Tiber Valley project has revised and re-evaluated the survey in recent years, and can be regarded as equally as

[210] Welch 2007: 246-252.
[211] Golvin 1988: 284.
[212] Laurence *et al* 2011: 265. Also see Jouffroy 1988.
[213] See appendix, Hackett No. ITAL ETR #6 and #7.

important as its predecessor.[214] The South Etruria survey shows that there were only seven towns within the 2000 square kilometres to the north of Rome.[215] Potter argues that the lack of urban settlements can be explained in two ways: 'first, by the presence of a large rural population; second, by a marked growth in roadside settlements'.[216] A survey of the hinterland surrounding Sutrium has shown that there were at least 32 rural Republican sites, and that there were at least 50 sites which can be securely dated to have existed between c. 30 BC and AD 100.[217]

This number is relatively low compared to the data for the same period for the Ager Veientanus, which had at least 242 Republican sites and at least 327 sites dating to the early imperial period.[218] Potter's main explanation for this disparity is the Ager Veientanus' proximity to Rome,[219] with Morley arguing that the 'immediate hinterland' around Rome (of which the Ager Veientanus is a part) 'became urbanised, not only in the density of settlement there and the lack of a clear boundary with the city, but in its economy'.[220] Witcher has questioned the use of 'hinterland' in relation to Rome, and argues that *'suburbium'* should be the nomenclature for this area. I agree with Witcher's terminology (at least concerning Rome), and therefore will be using *suburbium* when discussing the area around Rome.[221]

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[214] Patterson 2004: *passim.* Also see Goodchild 2007: 5 and Millett and Patterson 1998: 1-20.
[215] Potter 1979: 116-117.
[216] Potter 1979: 116-117.
[217] Potter 1979: Table 5.
[218] Potter 1979: Table 5.
[219] Potter 1979: 133.
[220] Morley 1996: 92-93.
[221] Witcher 2005a: 120-124. Witcher disagrees with the use of 'hinterland', as it may impose modern or idealised concepts which may be inappropriate. Though Witcher argues that '*suburbium'* is 'historically loaded', it has less modern 'baggage' than 'hinterland'.

Witcher used the field survey data from the Tiber Valley project to attempt to estimate the Early Imperial population of the *suburbium* of Rome, using a 50 km radius from Rome as his 'catchment area'.[222] By using rural population estimates of 5-15 people per farm and 15-50 per villa, alongside varied estimates for urban sites, Witcher estimated that the *suburbium* of Rome had a population of between 193,275 and 644,200: this equates to a density of 35.7-119 people/km².[223] Witcher argued for the use of an 'informed estimate' of 60 people/km², with 32% in nucleated centres and 68% in the countryside.[224] Though Witcher's work is useful, we cannot necessarily rely on it to determine population levels in Etruria, as only a portion of South Etruria is caught within the 50km catchment area for Rome's *suburbium*.

However, surveys conducted in the rest of Etruria do suggest a relatively similar picture to that of the south of the region. Most suggest that agricultural intensification and population levels either remained stable or increased between the late Republican and early imperial period.[225] The increasing level of rural population through the period could possibly have been an influencing factor during the construction of the 1st Century AD amphitheatres at Florence, Arretium and Volsinii Veteres, though it must be remembered that there would have been other influencing factors for their construction.[226]

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[222] Witcher 2005a: 120-138. Also see Goodchild 2007: 331-332. Interestingly Sutrium, Falerii Novi and Lucus Feroniae all fall within this 50 km catchment area, perhaps suggesting that the popularity for amphitheatre spectacles amongst the populace of Rome had an impact in Rome's *suburbium.* Note that this is 50 km, not 50km².

[223] Goodchild 2007: 331-332. Also see Witcher 2005a: 126-129 and Witcher 2006b: 88-123.

[224] Witcher notes that the rural population density for the whole of South Etruria is unlikely to be 60 per km². Instead, the rural population density for South Etruria has been suggested by Blanton 2004: appendix 1, to be around 31 people per km².

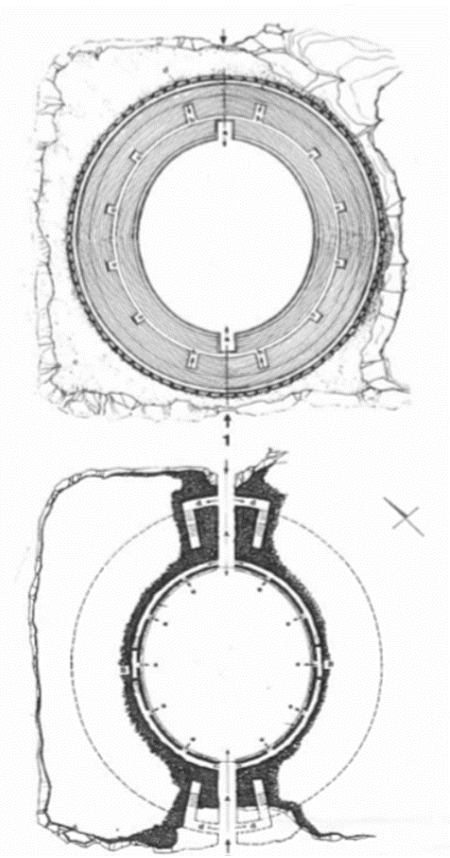
[225] Witcher 2005b: 1045-1055. See table 1 specifically.

[226] Golvin 1988:

3.6.3: TRAVEL AND REGIONAL INTERACTIVITY

The regional connectivity fostered by roads across the Italian peninsula is clearly apparent in Etruria too. The Via Cassia was a principal trunk-road which both Potter and Duncan cite as being the reason for Sutrium's economic prosperity during the Republican period.[227] This economic prosperity could have been one potential factor in the 'oversizedness' of Sutrium's amphitheatre (a plan of which can be seen in figure 8 below).

Figure 8: Plan of the Sutrium Amphitheatre



Another factor which is also worth noting that the two amphitheatres constructed during the 1st century BC in Etruria are only some 30km apart from each other, and such could have

[227] Duncan and Reynolds 1958: 81-84. Also see Potter 1979: 115-116.

been located in neighbouring territories.[228] The area between Sutrium and Ferentium would have seen a significant veteran settlement. An inscription from Sutrium refers to the city as *Colonia Coniuncta Iulia Sutrina*, which can be dated as either from the Triumvirial or Augustan period.[229] The construction of two amphitheatres in relatively close proximity can suggest that competitiveness between the veterans in the area might have played a part in their construction, and therefore explain their 'oversizedness'.

Analysis conducted by Goodchild has shown that, within the Tiber Valley project's parameters, 99.50% of early Imperial farms were within 10km of nucleated centres, suggesting that the area was generally characterised by good access to urban centres and the services provided in them.[230] However, Goodchild's figures are only applicable to southern Etruria, within the geographical parameters of the Tiber Valley project.[231] Despite this issue, if we consider the data provided by Goodchild in correlation with the significant rural population density shown by the various surveys discussed above, the case for classifying Sutrium as a 'regional' amphitheatre certainly seems to be a strong one. In the case of Sutrium, the 'catchment region' is likely to extend into neighbouring territories; the populations of nearby urban centres were also likely to be considered in said 'region'. An argument for categorising the amphitheatre at Falerii Novi as a 'regional' amphitheatre can

[228] Welch 2007: 249. The rural populations of both territories would have been in a good position to be able to travel to both urban sites. This could have been a considerable factor in the construction of the amphitheatre at Sutrium, as the town would certainly have wanted to attract as many people to travel to experience amphitheatre spectacles, as the economic benefits of doing so could have been high (though this would depend on how important economic benefits were in the decision making process).
[229] *CIL* XI 3254. Also see Welch 2007: 248.
[230] Goodchild 2007: 168-174, especially table 4.25. Goodchild argues that the high number of sites close to an urban centre in the Early Imperial period partly reflects the higher density of rural sites, but also the increased number of nucleated centres in this period.
[231] Patterson 2004: 1-8. Patterson briefly discusses the survey area and methodology of the Tiber Valley project here.

also be made, and likely would have been in direct competition with Sutrium due to the relative closeness of both sites, as can be seen above (figure 6).

3.7: CASE STUDY THREE: HISPANIA BAETICA

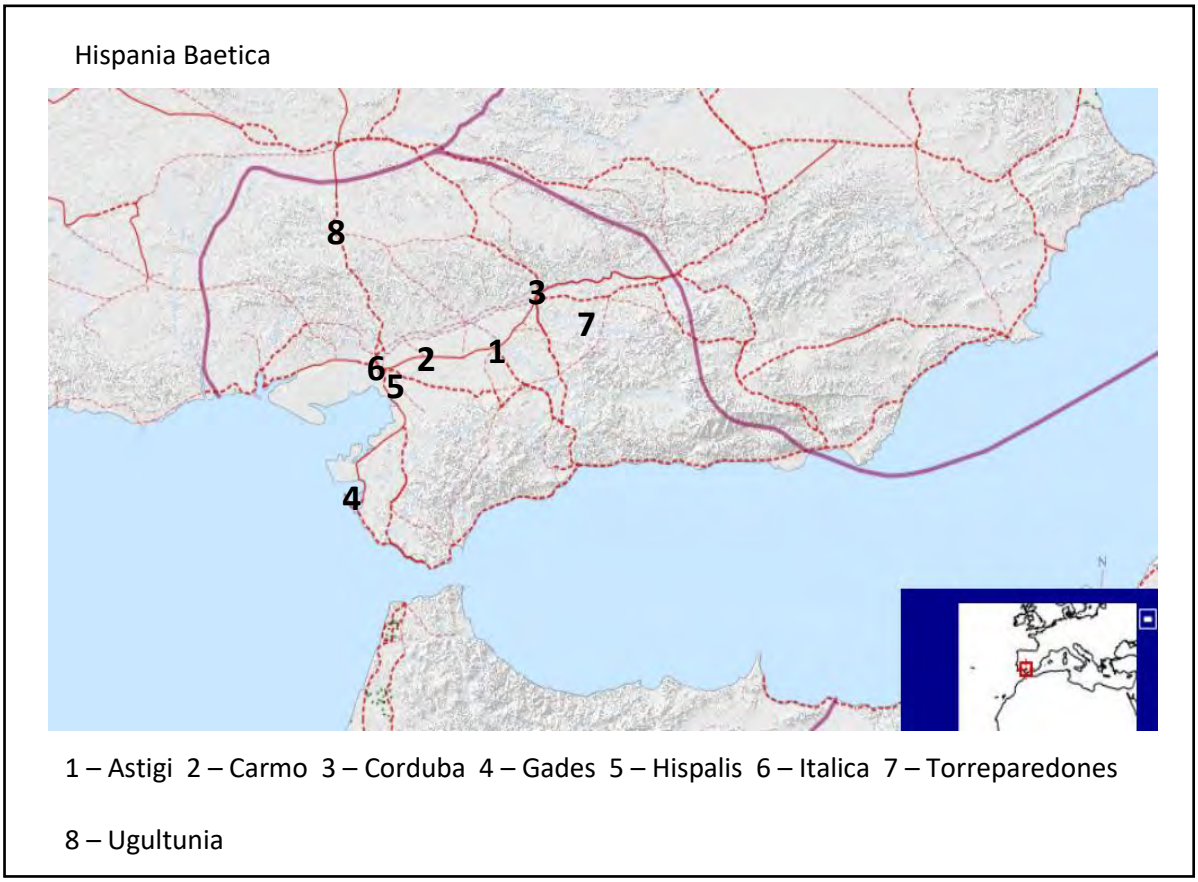
The province of Hispania Baetica has been considered to have been 'one of the most Romanized and most urbanized provinces of the empire',[232] even to the point of Baetica being called 'a little Italy'.[233] Baetica has even been used as an index by which the *urbanitas* of other provinces have been judged.[234] Recent re-evaluations of the province have begun to suggest that in reality, the situation in Baetica was more subtle than once thought, especially in terms of the monumentality of the towns of Baetica.[235]

The fact that there are only a small number of amphitheatres currently known in Baetica suggests that 'monumentalisation' was not as widespread as previously thought.[236] Laurence *et al.* rightly note that there are only as many amphitheatres in Spanish cities as in British cities.[237] An accepted explanation of this is that amphitheatre culture was of less importance in Spain than the use of other types of urban entertainment buildings, such as theatres and especially circuses.[238] However, in all these debates the importance of amphitheatre *capacity* has never been considered as a possible explanation for the small number of amphitheatres in Baetica. The table above shows that four of the eight

[232] Downs 2000: 197.
[233] Rostovtzeff 1957: 211.
[234] Keay 1998: 83.
[235] Revell (Revell 2011: 55-57.) has noted that 'too often the extent of urbanisation (and by extension, Romanisation) has been seen as directly proportionate to the number or the decoration of the public buildings', as well as noting the tendency to focus on the activities of the elite. Also see Keay 1998 in general.
[236] There are currently only 6 widely accepted amphitheatres. The amphitheatres at Gades and Hispalis are hypothesised, and no permanent structures have currently been found in either city.
[237] Laurence *et al* 2011: 279-280.
[238] Laurence *et al* 2011: 279-281. Also see Sear 2006 and Humphrey 1984.

amphitheatres (including two possible amphitheatres) can be considered as 'oversized'. The map (figure 9) below shows the amphitheatres of Baetica:

Figure 9: Map of Hispania Baetica



3.7.1: CHRONOLOGY AND DENSITY MULTIPLIERS

The amphitheatre at Carmo is accepted as one of the handful of stone-built Republican amphitheatres currently known across the whole empire, with excavators dating it between 50-30 BC, and is currently the first permanent amphitheatre to be constructed outside the Italian peninsula.[239] It is also the largest Republican amphitheatre, with a capacity 1,800

[239] Fernandez-Chicarro 1973: 855-860. Also see Golvin 1988: 44 and Welch 2007: 189-255.

larger than Pompeii.[240] The two 'oversized' amphitheatres at Córduba and Astigi have both been dated to around the middle of the 1st century AD.[241] The final 'oversized' amphitheatre, at Italica, has been dated to the second century AD. [242] The traditional interpretation for Italica's 'oversizedness' is that of serious elite involvement in its construction,[243] including imperial investment under Trajan and Hadrian, though there may have been other factors involved too.[244]

A brief mention has to be made concerning a recent discovery, through the use of LiDAR, of an amphitheatre at the city of Torreparedones.[245] Torreparedones has a surface area of 11 hectares which, if multiplied by a population density figure of 250/ha, would give Torreparedones an estimated population of 2,750.[246] To date, no excavations have been undertaken in the environs of the amphitheatre, meaning that it is extremely difficult to accurately determine its size, let alone a capacity estimate or construction date. However, the emergence of a previously unknown amphitheatre supports the notion that amphitheatre spectacles were deemed to be culturally important in Baetica.

The urban population density multiplier used throughout this case study is 250/ha.

3.7.2: RURAL SURVEYS AND RURAL POPULATIONS

[240] Carmo's estimated capacity is 30,899 while Pompeii's estimated capacity is 29,099.
[241] Jimenez Hernandez 2015: 127-148. This date coincides with a rapid uptake of monumentality within the province, as described by Keay 1993: 82.
[242] Golvin 1988: 200-202.
[243] Revell 2009: 168-172. Revell notes the evidence for the specifically designated areas in which members of the elite could sit. These elites would have also been heavily involved in the funding of *munera,* either through organising events or even through ownership of gladiators.
[244] Revell 2009: 57-62.
[245] Monterroso-Checa 2017: 2-8.
[246] Monterroso-Checa 2017: 2-8.

The largest field surveys that have been undertaken in Baetica are those conducted by Ponsich.[247] Despite the difficulties of determining wholly accurate territories of towns in Baetica, Keay and Earl have attempted to do so, focusing on geo-spatial analyses rather than field surveys.[248] The demography of rural sites is a difficult task, and the data largely relies on whether extensive surveys have been undertaken within the region. The surveys conducted by Ponsich in and around the Guadalquivir valley have shown that there was significant density in those rural territories lasting until at least the fourth century AD of towns with 'oversized' amphitheatres.[249]

Also important in Baetica are the *conventus.*[250] In the early imperial period there were four *conventus* divisions in Baetica: *Hispalensis, Cordubensis, Gaditanus* and *Astigitanus.*[251] The table below shows figures taken from Cortijo Cerezo concerning the estimated urban densities in each of the *conventus* of Baetica:[252]

Figure 10: Number of towns in *conventus* divisions in Baetica (From Keay 1998: 85)

Conventus	Number of Towns	Approx. Area (sq.km)	Urban Density
Hispalensis	27	17,608	1.53 towns per 1000km^2
Cordubensis	25	13,576	1.84 towns per 1000km^2
Gaditanus	34	12,712	2.67 towns per 1000km^2

[247] Ponisch 1974, 1979, 1987 and 1991.
[248] Keay and Earl 2011: 276-316. Additionally, Keay's appendices in his 1998 article, *The Development of Towns in Early Roman Baetica* are extremely useful.
[249] Ponsich 1979. His survey of rural areas near Astigi (Palmar del Rio, La Campana and Posadas) show that there were at least 167 rural sites in an area of 454km^2. Also see Carreras Monfort 1995-6. 59-82.
[250] Richardson 1998:210-213. Also see Pliny *Natural History* 3.1.7.
[251] Pliny *Natural History* 3.3.
[252] Cortijo Cerezo 1993: 157-164. Also see Keay 1998: 85.

Astigitanus	35	12,240	2.85 towns per 1000km^2
Total	121	56,136	N/A

It is also important to consider the density and distribution of towns within Baetica. Rank-size analysis of both Baetica and the whole Iberian Peninsula have clearly shown a pronounced diversity in terms of the density and distribution of Roman towns in Spain.[253] Keay notes that the prominence of 'middle-ranking' towns in the size-range of 20-25 ha in Baetica suggests an overall densely populated region. The economic relevance of the more important socio-political and socio-economic towns would certainly have influenced travel between the smaller towns of Baetica, if predominately for trading purposes.

We have to consider the possibility that the amphitheatre at Córduba was not solely intended for Córduba and its immediate 'civic' territory; it could have been intended for a larger geographical area, as the amphitheatre at Córduba is the only one within the *conventus Cordubensis* - the city's status as provincial capital and as a central place within the provinces road systems certainly supports this idea.[254] The case for the amphitheatre at Córduba being intended to perform the role of a 'regional' amphitheatre can therefore be made.

3.7.3: TRAVEL AND REGIONAL INTERACTIVITY

In Campania and Etruria, it was clear that the road system was an integral facilitator of the cultural network of games and spectacles, and Hispania is no different. The principal

[253] Carreras Monfort 1995-6: 59-82. Also see Marzano 2011: 207-212.and Keay 1998: 60-61.
[254] Fear 1996: 199. Also see Bekker-Nielsen 1989: 4-8.

highway of the province, the Via Augusta, ran through Córduba, Astigi, Carmo, Gades and Hispalis,[255] meaning that large amounts of traffic would have passed through these cities, especially during prime agricultural periods of the year.

The scale and importance of the rural economy in Hispania Baetica, especially in terms of agricultural production (particularly olive production)[256] has to also be considered in order to understand the possibility for 'regional' amphitheatres in Baetica. By the 1st century AD, Baetica had become one of the most economically important provinces in the Western Empire; Rodriguez and others have argued that Baetica was a great supplier for Rome (as can be clearly seen in archaeological evidence from Monte Testaccio),[257] suggesting that Baetican olive oil had a 'virtual monopoly amongst the western provinces'.[258] The commercial importance of olive oil production, coupled with an general increase of rural intensification,[259] has been seen as a major reason for an increase of population density along the Guadalquivir valley.[260]

3.8: CONCLUSIONS: 'REGIONAL' AMPHITHEATRES?

The aim of this chapter was to assess whether the 'oversizedness' of amphitheatres were indicators for the popularity of amphitheatre spectacles within a region. Previously, amphitheatres have been considered as isolated structures, built primarily for their local

[255] Laurence *et al* 2011: 271. Also see Corzo Sanchez 1994: 244.
[256] Rodriguez 1998: 183-200.
[257] Rodríguez (Rodríguez 1998: 193-197.) has noted that upwards of 80% of the olive-oil amphorae from Monte Testaccio originated from Baetica. Also see Blázquez Martínez *et al.* 1994 for the first report on excavations on Monte Testaccio, directed by J.M. Blázquez.
[258] Rodriguez 1998: 199. References to the production of olive oil in Baetica by Martial and Strabo (for instance) show that between AD 140 and AD 250, Baetica had become a major purveyor of oil in the whole of the Roman west. Strabo. 3.2.6. Also see Martial 63.1 and Ponsich 1998: 174-175.
[259] Haley 1996: 283-303.
[260] Keay 1998: 19-21. Also see Ponsich 1974, 1979,1987 and 1991.

urban environs rather than for a wider community beyond the urban core. Another typical explanation for the construction of 'oversized' amphitheatres is that they were built purely as a result of elite benefactions. However, this present chapter has shown that these are somewhat simplistic propositions that must now be put aside. Instead, it is important to realise that a multitude of factors were likely considered during the construction or refurbishment of an amphitheatre. The importance of local population levels in the construction of amphitheatres has not before been fully realised, and the importance of amphitheatre culture to rural populations has been largely overlooked. The cultural networks, largely facilitated by regional infrastructure, which existed between urban places are likewise important factors which will have probably been considered when an amphitheatre was under construction.

Over the course of this chapter, we have examined the possibility for 'regional' amphitheatres in Campania, Etruria and Baetica. In the context of this study, there are some clear similarities between these regions. The evidence from Campania seems to suggest that a number of the amphitheatres were probably intended for 'regional' audiences - the evidence concerning Pompeii, for example, suggests at correlations between the seating capacity estimate of the amphitheatre and the combined population estimate of the urban core and the rural landscape. Furthermore, the road systems and thriving market economy facilitated travel to urban centres from the countryside, as well as between urban places. The situation in Etruria seems to suggest a similar picture to that of Campania. The relatively small distances between rural sites and urban centres apparent in the south of Etruria point towards a rural landscape which was highly integrated into the overall network of the

regio.[261] In Baetica, the well-established regional infrastructure, especially the Via Augusta, would have facilitated travel from the periphery to important urban centres. Additionally, agricultural production in the province became increasingly intensified, leading to higher population densities and increasing the commonality of markets in the region.

Overall, this chapter has shown that there were probably a multitude of influencing factors considered during the construction of amphitheatres. Traditionally accepted factors, such as elite and/or imperial benefaction, as well as competitiveness between cities, were still important factors in the construction of 'oversized' amphitheatres. However, other potentially crucial factors which have been suggested in this chapter, such as rural populations being potential spectators, should also be considered as explanations for the apparent 'oversizedness' of amphitheatres.

[261] Goodchild 2007: 168-174.

CHAPTER 4: QUANTIFYING POPULARITY: DO LOW CAPACITY AMPHITHEATRES INDICATE LOW LEVELS OF POPULARITY?

In the previous chapter, amphitheatres whose capacity estimates greatly exceed the local population estimates were discussed. In order to consider all aspects of 'popularity', it is important to supplement that discussion with one which focusses on those amphitheatres where the situation is the opposite; where local population levels greatly exceed the amphitheatre's seating capacity estimates. The methods and factors which were used to understand 'oversized' amphitheatres are not necessarily applicable to 'undersized' amphitheatres. To be able to assess whether low seating capacity estimates equate to low levels of popularity in the case studies that will be presented here, we have to first discuss the specific factors which will be considered. Also, as in the previous chapter, the term 'undersized' amphitheatre has to be examined and defined before any analysis can take place.

It is difficult to draw conclusions about areas or towns/cities experiencing low levels of popularity for amphitheatre spectacles. As noted above, using capacity estimates to assess levels of popularity, regardless of high levels or low levels, is not an exact science. Any conclusions which are made in this chapter, as in this thesis in general, do not pretend to present an absolute truth, but they should rather be seen as a starting point for a new discussion on the popularity of spectacles (not just amphitheatre-based spectacles) in the Roman world.

4.1: DEFINING 'UNDERSIZED' AMPHITHEATRES

'Undersized' amphitheatres can be defined as amphitheatres where the seating capacity is at least 25% *below* the local urban population estimates. If the whole of an urban centre's population were 'fanatical' about amphitheatre spectacles, as earlier scholars have traditionally suggested,[262] but the local amphitheatre could not accommodate 25% or more of the local population, then we must consider it as 'undersized'. However, this is an oversimplification, as it does not take into account population trends or the existence of other spectacle structures and their relative popularity in comparison with amphitheatre spectacles. Additionally, we have to bear in mind that though an amphitheatre may seem 'undersized' to moderns, it may have seemed appropriately sized to the Romans, who understood the *actual* popularity of amphitheatre spectacles in their local area.

4.2: THE DATASET

Fifty of the 253 (19.76%) amphitheatres in the Latin West fit into the categorisation as 'undersized'.[263] If we consider 'oversized' amphitheatres as a marker of high popularity, and 'undersized' amphitheatres as a marker of low popularity, this could be, in the sense of a first proposition, be regarded as evidence for amphitheatre culture being, in general, more popular than unpopular across the West as a whole.

[262] Friedländer 1908: 16-17.
[263] See appendix 1.

The smallest amphitheatre which can be described as 'undersized' is the one in Feronia, in Etruria, which has an estimated seating capacity of 2,364[264] and an urban population estimate of 5,000.[265] This would mean that roughly only 47% of the local population could have been spectators at any one time. A suggestion could be made that this means that amphitheatre spectacles were not popular in Feronia (and its surrounding territory) because the amphitheatre was not built with the accommodation of all of its urban populace in mind. However, this is a somewhat simplistic explanation for what surely was a more complex situation. Another possible explanation for 'undersized' amphitheatres could be that they were built for specific sections of local society, such as the military, veterans or the elite.[266]

The largest amphitheatre which can be attributed to the categorisation of 'undersized' amphitheatres is the Colosseum in Rome.[267] Despite the extensive debate which exists around the actual population of Rome, one of the more accepted figures is that of one million people during the early Imperial period.[268] The seating capacity estimate of the Colosseum is also debated, but most estimates range from 50,000 to 60,000.[269] In this thesis Golvin's equation has been applied, giving a seating capacity estimate of 64,665.[270] Therefore, with a population of one million people, the Colosseum could only accommodate 6.46% of imperial Rome's urban population. By contrast, the Circus Maximus has been

[264] Golvin 1988: 284-288.
[265] Hanson 2016.
[266] Here we also have to consider the wealth of the community or the builder(s), which may be devised from inscriptions directly related to the structure. For example, the amphitheatre at Lugdunum was given by a citizen of Saintes. See *AnnEp* 1959, nos. 78 and 81.
[267] Golvin 1988: 284-288. Also see Welch 2007, Bomgardner 2000.
[268] Morley 1996: 33-39. Also see De Ligt 2012: 241-243.
[269] Hopkins and Beard 2005: 112.
[270] See appendix, Hackett No. ITAL LAT #6.

estimated by modern scholars to have had a capacity of 150,000,[271] which perhaps seems more likely than Pliny's suggestion of a capacity of 250,000, and far more likely than the 385,000 to 485,000 given in 4th century AD Regionary Catalogues.[272]

A provincial/regional breakdown of these 'undersized' amphitheatres helps to highlight the key trends:

Figure 11: Geographical Split of 'Undersized' amphitheatres

Province/Region	Number of 'Undersized' Amphitheatres	Total Number of Amphitheatres
Africa Proconsularis	14	26
Italia (Including Corsica and Sicilia)	13	77
Gallia Lugdunensis	7	31
Mauretania Caesarensis	3	5
Gallia Narbonensis	3	8
Numidia	3	7

[271] Coleman 2000: 213. Also see Humphrey 1986: 126.
[272] Humphrey 1986: 126.

Britannia	2	16
Gallia Aquitania	2	14
Gallia Belgica	2	6
Hispania Tarraconensis	1	9
Germania Inferior	1	4
Noricum	1	2

The data concerning Africa Proconsularis is perhaps the most striking, as over half of all known amphitheatres in the province can be categorised as 'undersized'. This suggests at a situation which requires further analysis; this will be done through the means of a case study later on in the chapter.

4.3: EXPLAINING 'UNDERSIZED' AMPHITHEATRES

To be able to attempt to explain the 'undersizedness' of these amphitheatres, we have to consider the potential influencing factors that may have been in play during the construction of said amphitheatres. Factors such as other spectacle structures (and if they were constructed before or after the amphitheatre(s) in question), whether amphitheatres were intended for specific sections of society and elements of urbanism that may have impacted the popularity of amphitheatre spectacles will all be considered.

4.3.1: OTHER FORMS OF SPECTACLE STRUCTURES

Perhaps the most important factor which could have caused low levels of popularity or low demand for large amphitheatres is the existence of other spectacle structures in the same urban environment as an 'undersized' amphitheatre.

While Roman theatres are the most common spectacle building in the Latin West, they are typically smaller buildings with smaller capacities than both amphitheatres and circuses.[273] There are also indications that the builders of theatres in the Greek East purposely focussed on having higher capacities than their Western counterparts, even if the theatres shared almost identical dimensions.[274] This might suggest that theatre spectacles were the dominant form of entertainment in the East, and at face value suggests lower levels of popularity in the West.[275] It is not uncommon to find urban sites with several theatres: Pompeii had two theatres which have been labelled as the 'Large Theatre' and the 'Small Theatre' (Odeum has also been used to describe the small theatre at Pompeii).[276] By using the same seating average space as Bomgardner,[277] the 'Large Theatre' at Pompeii has a seating capacity estimate of 3,850, while the Odeon has an estimated capacity of 1,850.[278] In terms of the analysis undertaken in this chapter, it seems logical to combine the capacities of all the theatrical buildings present in an urban environment, as they could form part of a unified entertainment complex, as at Pompeii or Lugdunum.[279]

[273] Sear 2006: 25-27.
[274] Sear 2006: 27.
[275] Dodge 2009 usefully discusses the arguments for amphitheatre spectacles being 'unpopular' in the Greek East.
[276] Sear 2006: 37-47, 130-132.
[277] Bomgardner 2000: 234.
[278] Sear 2006: 131-132.
[279] Sear 2006: 37.

Compared to the numbers of theatres and amphitheatres in the Latin West, circuses are rare.[280] A conservative estimate, based largely upon Humphrey's work would suggest at the number of circuses in the Latin West standing at around the 50 mark.[281] It is unfortunate for this present study that Humphrey's work does not contain the same level of usefully presented statistical data that can be seen in both Golvin and Sear's work for amphitheatres and theatres respectively.[282] Humphrey instead usually makes vague statements on capacity estimates.[283] This certainly makes it difficult to understand the full seating capacity of circuses in comparison to amphitheatre seating capacity estimates, which therefore makes it more difficult to assess if certain spectacles were more popular than others.

4.3.2: CHRONOLOGY OF SPECTACLE STRUCTURES

Though the existence of and popularity of other spectacles were elements which were probably considered during the construction of amphitheatres, they were certainly not the only factors in play. For example, we have to consider where an amphitheatre was constructed, and the possibility that it was intended for specific sections of society. For example, the amphitheatre situated at the sanctuary site of Champlieu has an estimated seating capacity of only 2,989.[284] Champlieu is situated roughly equidistant between Augustomagus Sylvanectum and Augusta Suessionum, whose estimated populations are 9,600 and 19,000, respectively.[285] Is it possible that the amphitheatre at Champlieu was only

[280] Humphrey 1986: *passim.* Also see Dodge 288-290.
[281] Humphrey 1986: *passim*. Humphrey's chapter on Spanish circuses, 337-387 and especially figure 149, highlights the uncertainty about the numbers of circuses in the Latin West.
[282] See for example, Golvin 1988: 284-289, and Sear 2006: tables 3.1, 4.1, 4.2 and 4.3.
[283] Humphrey 1986: 319-320.
[284] See Appendix VI, 'Gallia Belgica', Hackett No. GB #2.
[285] Hanson 2016: 439 and 449. Also see Appendix VI, 'Gallia Lugdunensis', Hackett No. GL #7 for Augustomagus Sylvanectum.

intended for the elite members of society from the aforementioned cities, especially those with political or religious roles, as can be seen at the amphitheatre at Lugdunum?[286]

4.3.3: THE CASE STUDIES

As in the previous chapter, case studies will be used to better explore the categorisation of 'undersized' amphitheatres. The first case study will consider the 'undersized' amphitheatres across Gallia Aquitania, Belgica, Lugdunensis and Narbonensis. The range of capacity-to-population difference is striking: the largest difference is -30,144 at Lugdunum, while the smallest is -5,414 at Sanxay.[287] Another factor to consider is the relatively high distances between urban centres, as shown in figure 2, which is in stark contrast to the urban density of Africa Proconsularis, which will be the focus of the second case study in this chapter.[288]

The most important reason why Africa Proconsularis has to be analysed is that 14 of the 26 amphitheatres can be categorised as 'undersized'.[289] Additionally, these 'undersized' amphitheatres are situated in urban centres whose estimated population levels range from 85,750 to 7,750, which presents us with an opportunity to examine different levels of popularity across a range of urban settings.

The population density multipliers used in the following case studies are 200/ha for each of the Gallic provinces and 250/ha for the cities of Africa Proconsularis.

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[286] Goodman 2007: 128-131.
[287] See Appendix V, Hackett No. GL #14 and GA #13 respectively.
[288] Le Glay, Voisin and Le Bohec *et al* 2009: 446-447.
[289] See Appendix VI, 'Africa Proconsularis'.

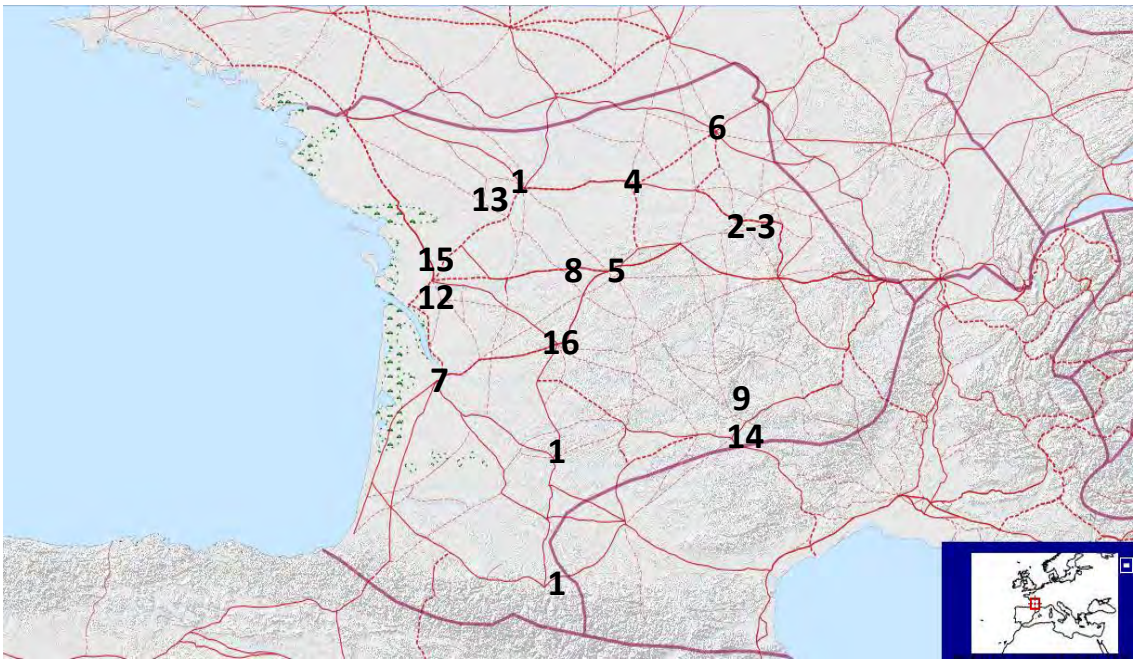
4.4: CASE STUDY ONE: THE GALLIC PROVINCES

Fourteen of the 57 amphitheatres (24.56%) across the four Gallic provinces can be categorised as 'undersized'.[290] Though this is not necessarily a high percentage, the situation in the Gallic provinces has to be analysed for a number of reasons. One such reason is the existence of a 'local variant' on the amphitheatre's architectural form.[291] This 'local variant' can be referred to as a 'mixed spectacle edifice': a building which could serve as either amphitheatre or theatre and subsequently could host either spectacle or even a so-called 'Gallic Hybrid' spectacle.[292] Another reason to analyse the situation in Roman Gaul are the links between religious complexes and amphitheatres which can be categorised as 'undersized', be they 'classical' amphitheatres or 'mixed spectacle edifices', and whether we can determine popularity levels from thesis sites. Perhaps the best example of this is the amphitheatre associated with the sanctuary of the Three Gauls in Lugdunum, which will be discussed below.[293]

[290] See Appendix VI, 'Gallia Aquitania', 'Gallia Belgica', 'Gallia Lugdunensis' and 'Gallia Narbonensis'.
[291] Dumasy *et al* 1989: 43-75. Also see Goodman 2007: 142-148.
[292] French scholars have often described these as either an 'amphithéâtre à scene' or 'édifice mixte'. Golvin divided 'édifice mixte' into two sub-categories: the 'semi-amphitheatre' and the 'theatre-amphitheatre'. However, as Goodman 2007: 261 points out, Dumasy challenged the latter classification on the basis that 'these buildings did not have an enclosed arena suitable for fighting'. 'Theatre-amphitheatres' are now generally referred to as either 'Gallic theatres' or 'Gallo-Roman theatres'. Also see Drinkwater 1983: 149-150.
[293] Goodman 2007: 130-132. Dating evidence suggests that a sanctuary site was probably established by Drusus in 12BC, while the amphitheatre can possibly be dated to the reign of Tiberius.

Figure 12: Map of Gallia Aquitania

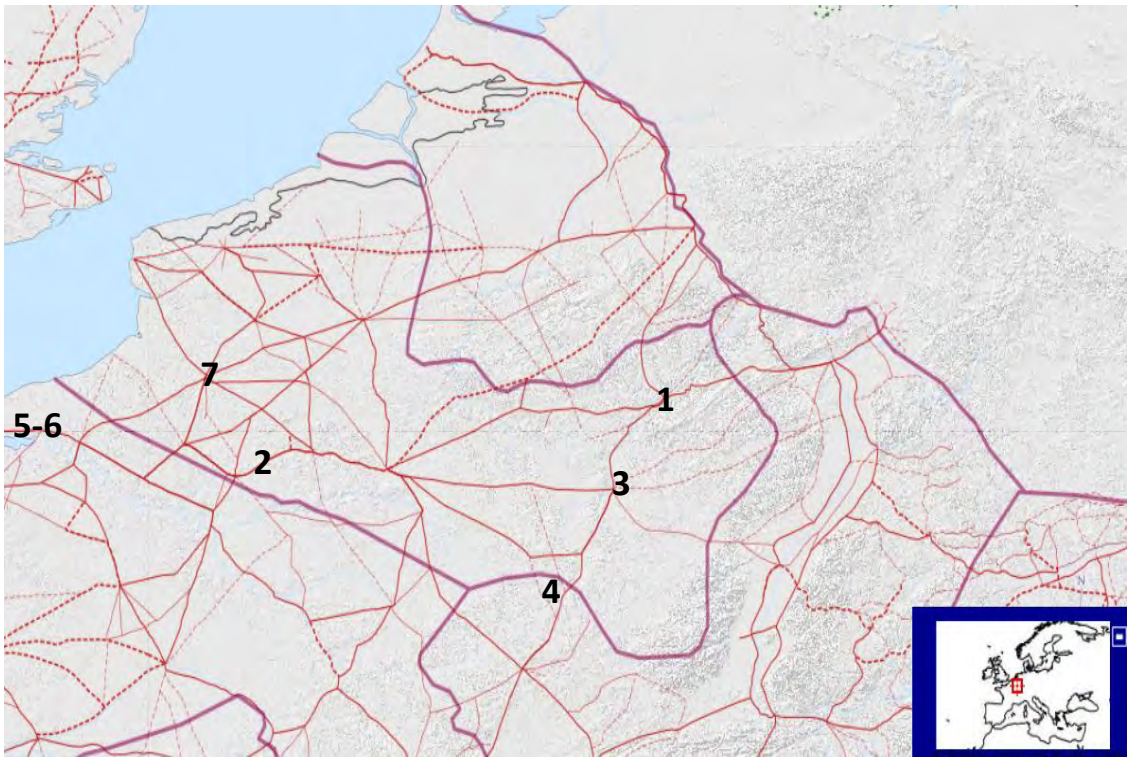
Gallia Aquitania



1 – Aginnum 2-3 – Aquae Neri 4 – Argentomagus 5 – Augustoritum Lemovicum 6 – Avaricum 7 – Burdigala 8 – Cassionmagus 9 – Catiriacum 10 – Limonum 11 – Lugdunum Convenarum 12 – Saintes 13 – Sanxay 14 – Segodunum 15 – Surgeres 16 - Vesunna

Figure 13: Map of Gallia Belgica

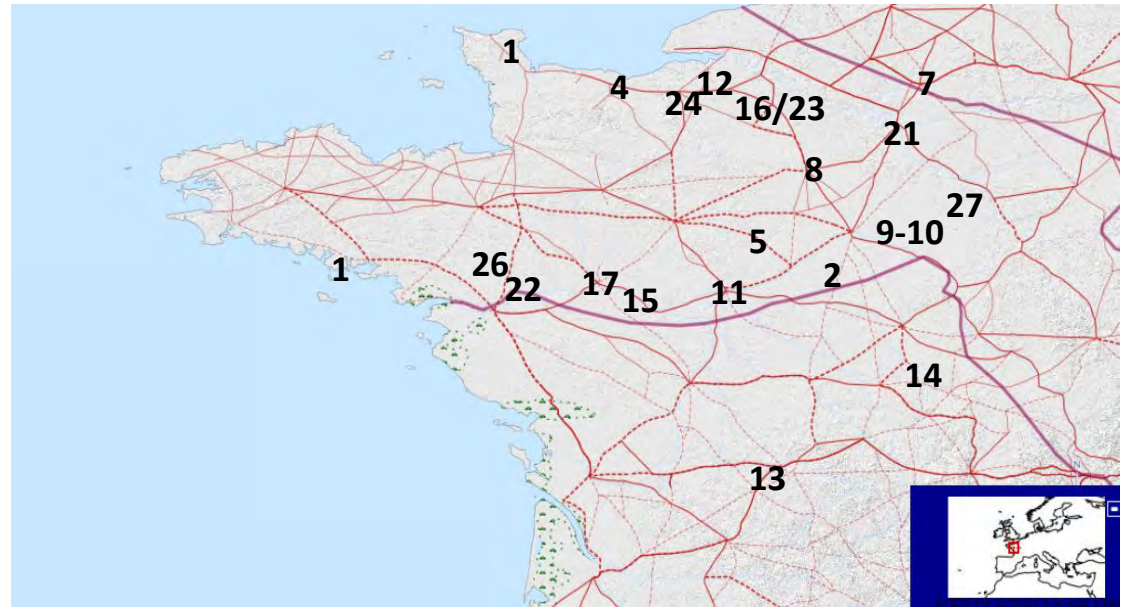
Gallia Belgica

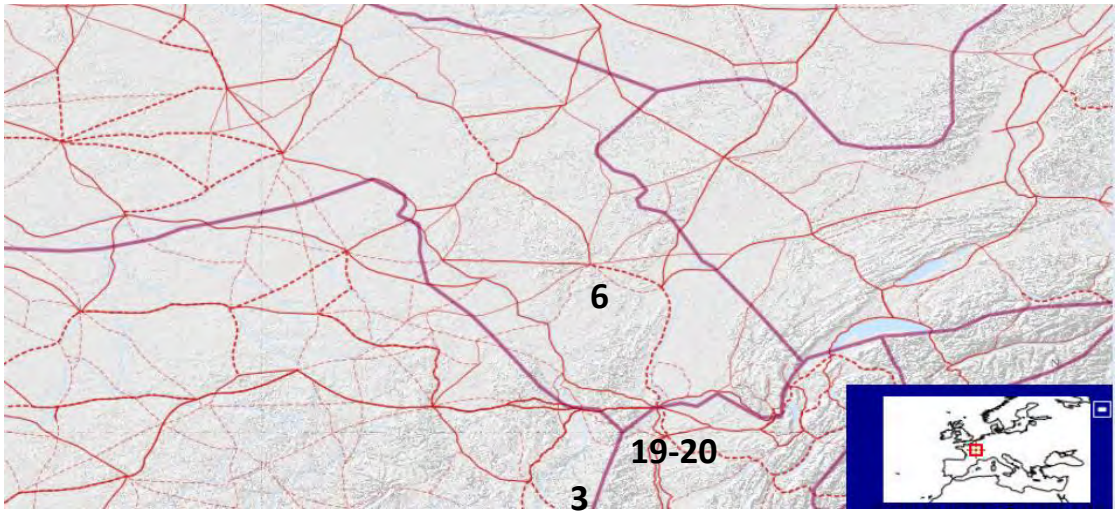


1 – Augusta Treverorum 2 – Champlieu 3 – Divodurum Mediomatricorum 4 – Grannum 5-6 – Iuliobonna 7 - Samarobriva

Figure 14: Map of Gallia Lugdunensis

Gallia Lugdunensis





1 – Alauna 2 – Alleants 3 – Aquae Segetae 4 – Aregenua 5 – Areines 6 – Augustodunum 7 – Augustomagus Sylvanectum 8 – Autricum 9 – Bonnee 10 – Bouzy-la-Foret 11 – Caesarodunum Turonum 12 – Canetonum 13 – Chenevieres 14 – Derventum 15 – Gennes 16 – Gisacum 17 – Iuliomagus 18 – Locamariaquer 19-20 – Lugdunum 21 – Lutetia Parisiorum 22 – Mauves 23 – Mediolanum Aulercorum 24 – Noviomagus Lexoviorum 25 – Noviodunum 26 – Silva Martis 27 - Villanodunum

Figure 15: Map of Gallia Narbonensis

Gallia Narbonensis

1 – Arles 2 – Baeterrae 3 – Forum Iulii 4 – Narbonne 5 – Nimes 6-7 – Tolosa (Toulouse)

4.4.1: 'UNDERSIZED' AMPHITHEATRES AT RELIGIOUS SITES

As mentioned above, there are a number of 'undersized' amphitheatres which are closely linked to religious sites; these include the amphitheatres at Lugdunum (Phase 1), Narbonne, Sanxay, Argentomagus and Tolosa (Phase 1).[294] The amphitheatres at Lugdunum (Phase 1) and Narbonne were sited at provincial sanctuaries of the imperial cult, and the cities themselves were important administrative cities.[295] It is somewhat surprising then that the amphitheatres at these two aforementioned cities can be categorised as 'undersized'.

A possible explanation for the 'undersizedness' of the amphitheatre at Lugdunum (Phase 1)[296] is that it was intended for an exclusive clientèle, rather than representing a low level of popularity for amphitheatre spectacles in Lugdunum and the surrounding area. The sanctuary at which the Lugdunum amphitheatre was built was the annual gathering site for the provincial council, which was made up of representatives sent by the individual communities of the Three Gauls.[297] The low estimated seating capacity of 3,856 could arguably represent the number of people expected to attend the annual meetings at the sanctuary; clearly not just the representatives, but perhaps their attendants and/or staff too, plus other members of the Gallic elite and their entourages. Additionally, the clear link between the amphitheatre and the sanctuary can also be seen in seating inscriptions, which mark specific places in the *cavea* in which cult officials and council representatives could sit.

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[294] See Appendix, 'Main Table'. The amphitheatre at Tolosa (Modern day Toulouse) is actually at Saint-Michel-du-Touch, a modern-day suburb of Toulouse. In the Roman period, the amphitheatre was in the hinterland of the Roman city, sited at a sanctuary site supposedly associated with a water-cult.
[295] Goodman 2007: 128-130.
[296] See appendix, Hackett No. GL #20. The first phase of the amphitheatre at Lugdunum is the smallest of the 'undersized' amphitheatres across the four Gallic provinces, with a capacity of 3,856: out of the 199 amphitheatres with capacity estimates, Lugdunum (Phase 1) ranks as having the 17th lowest capacity.
[297] Fishwick 1987-1992: 137 and 268. Also see Goodman 2007: 129-132.

It is likely, then, that the 'undersizedness' of Lugdunum (Phase 1) does not represent a low level of popularity in the area; instead, it represents a structure built for a specific section of Gallo-Roman society in a specifically important place in its first incarnation. We also have to remember that the amphitheatre underwent a complete overhaul during the reign of Hadrian, increasing its estimated seating capacity to 35,299, which slightly exceeds the estimated population of 34,000.[298]

This increase in capacity may indeed imply that amphitheatre culture had become popular enough (or public demand had significantly increased) to warrant a larger structure which could accommodate the entire estimated urban population. Additionally, the continued celebration of a major festival at Lugdunum may have also furthered the need for a larger amphitheatre. As more of the wider rural population became 'Romanized', and therefore more in tune with Roman religion, we can imagine that religious festivals became a significant motivation for travel, and amphitheatre spectacles may have been a secondary consideration. The overhaul of the amphitheatre at Lugdunum may have also been the result of imperial benefaction witnessed in the city.[299]

4.4.2: GALLO-ROMAN MIXED-SPECTACLE EDIFICES AND OTHER SPECTACLE STRUCTURES

As mentioned earlier, the classical amphitheatre was matched by a local variant, which can be described as either a 'mixed-spectacle edifice' or a 'Gallo-Roman theatre'. For the purposes of this thesis, both Gallic theatres and mixed-spectacle edifices are included in the database as two separate typologies as some scholars, such as Goodman and Golvin, have

[298] See appendix, Hackett No. GL #21.
[299] Eusebius. *Ecclesiastical History.* 5.1.47.

separated these spectacle structures.[300] A plan of a 'Gallo-Roman Semi-Amphitheatre' (figure 16) and a 'Theatre-Amphitheatre' (figure 17) can be seen below:

Figure 16: Plan of Grannum Gallo-Roman Semi-Amphitheatre

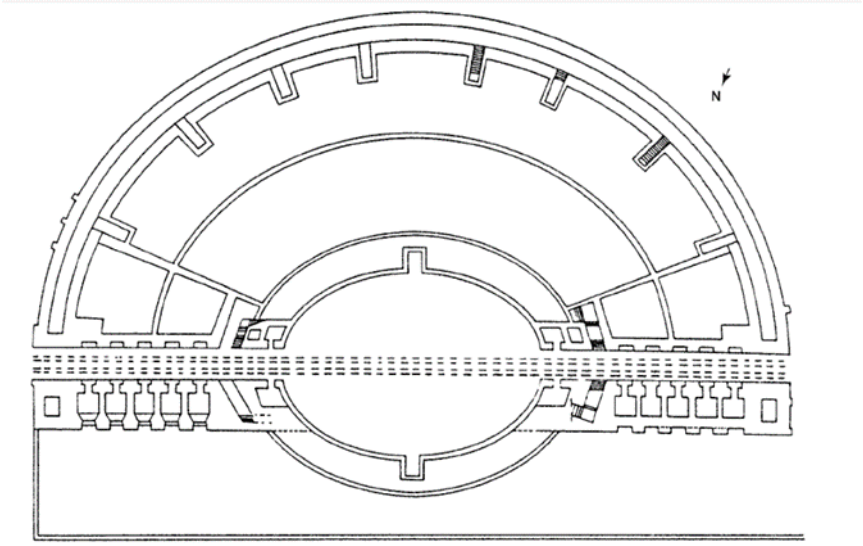
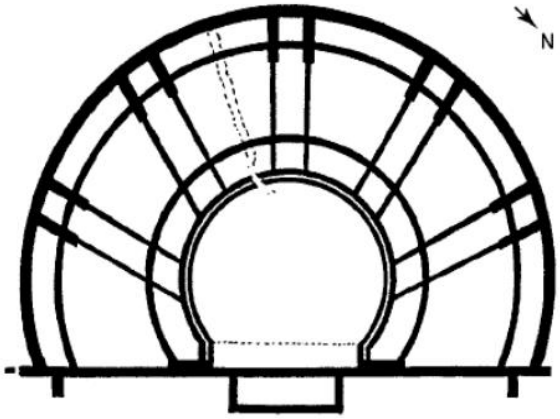


Figure 17: Plan of Alauna Theatre-Amphitheatre



It has been suggested that these mixed-spectacle edifices were designed to cater for a specifically Gallic brand of spectacles: a hybrid of theatrical and amphitheatre spectacles,

[300] Goodman 2007: 138-149.

intrinsically linked with local religious customs.[301] The fact that most of these mixed-spectacle edifices have been found in Lugdunensis and the Parisian basin could suggest that these 'hybrid Gallic spectacles' experienced high levels of popularity in that area; however, it is possible that the religious element of these 'hybrid Gallic spectacles' was the most culturally and socially important aspect, rather than the spectacles themselves.[302] Goodman has suggested that these mixed-spectacle edifices were built 'in order to bring shows and games to those living far away from the nearest city'.[303] If this was indeed the case, we would assume that the amphitheatre capacities would account for the wider populations, as shown in the previous chapter. In actuality, five of the seven 'undersized' amphitheatres in Lugdunensis belong to the mixed-spectacle edifice typology, which potentially suggests the opposite.[304] Additionally, the high average inter-centre distances between urban centres in Lugdunensis also potentially refutes Goodman's theory.[305]

It is important for us to briefly consider the situation at Trier, a city which had a full set of spectacle structures.[306] The amphitheatre constructed at Trier can be categorised as 'undersized', as it has an estimated seating capacity of 11,240 and an estimated population of 26,200.[307] It could be said that the 'undersized' nature of the amphitheatre is surprising, especially considering the administrative and political importance of Trier, especially during

[301] Drinkwater 1983: 149-150. Note that there are also at least two examples of mixed-spectacle edifices in Britannia: Frilford and Verulamiun.
[302] Futrell 1997: 69-71. Additionally, see Drinkwater 1983: 149-150 and Goodman 2007: 147, 160-162. Of the 27 amphitheatres in Lugdunensis, only 6 can be described as 'classical amphitheatres', while the remaining 21 are of a 'mixed-spectacle edifice' typology.
[303] Goodman 2007: 147.
[304] See Appendix V: 'Undersized' Amphitheatres, Gallia Lugdunensis.
[305] Bekker-Nielsen 1989: 25-27. The average intercentre distances for Lugdunensis are 57.7 km for central Lugdunensis and 100.4 km for the periphery of Lugdunensis.
[306] For the amphitheatre, see Golvin 1988: 89. For the two theatres, see Sear 2006: 207-208. For the circus, see Humphrey 1986: 408-409 and 425-427.
[307] See Appendix V: 'Undersized' Amphitheatres, Hackett No. GB #1.

the late 3rd and early 4th centuries AD.[308] However, we have to consider the chronology of the spectacle structures here. The amphitheatre is usually attested to have been constructed to around the reign of Trajan.[309] The dating of the circus at Trier is more complex than that of the amphitheatre. It is generally accepted that there was a stone-built circus by AD 310 at the latest on the basis of a panegyric which suggests that, at least in some part, Constantine the Great oversaw the construction of the circus.[310] However, there is a significant amount of indirect evidence for circus spectacles at Trier which pre-dates the aforementioned panegyric, namely through a number of mosaics which can be roughly dated to the second half of the 3rd century AD.[311] This clearly suggests that circus spectacles were present and experienced popularity in and around Trier prior to the 4th century refurbishment of the circus. Overall, the evidence from Trier shows us that the city's inhabitants had a complex and dynamic relationship with the different forms of spectacles, in which amphitheatre spectacles came second place to circus spectacles, especially from the early 4th century onwards.

4.5: CASE STUDY TWO: AFRICA PROCONSULARIS

There are 26 amphitheatres in the province of Africa Proconsularis, the highest number of amphitheatres per province of anywhere in the Latin West.[312] At first glance, an argument could be made that this high number of amphitheatres means that amphitheatre spectacles were highly popular throughout the province. However, 14 (53.84%) of these 26

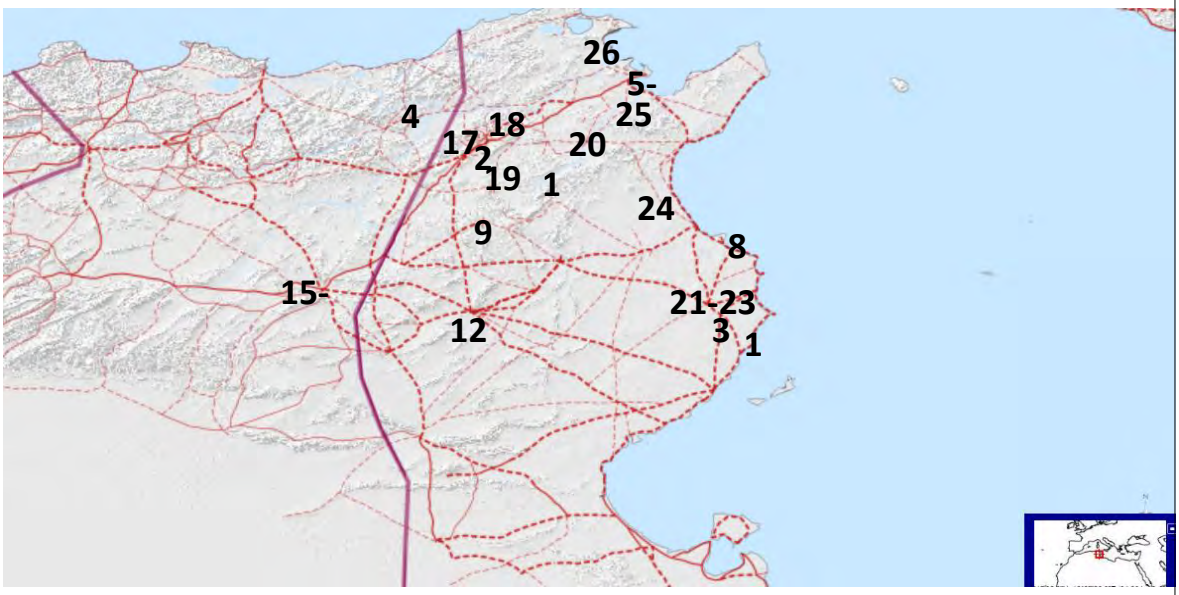
[308] Wightman 1985: 199-202.
[309] Golvin 1988: 89. Also see Wightman 1970: 79-82.
[310] Humphrey 1986: 408-409. Also see Wightman 1970: 102-103. The amphitheatre also underwent some small repairs and renovations around this time.
[311] Von Massow 1949: 149-169. Also see Reusch 1966: 216-222 and Humphrey 1986: 425-527.
[312] See Appendix VI, 'Main Table'.

amphitheatres can be categorised as 'undersized'.[313] If 'undersized' amphitheatres do indeed indicate low levels of popularity, then the overall picture is a complex one which needs to be understood. Additionally, we have to consider the evidence for other forms of spectacles in Africa Proconsularis and determine how this may have affected the popularity of amphitheatre spectacles.

[313] See Appendix V, 'Undersized' Amphitheatres, Africa Proconsularis

Figure 18: Map of Africa Proconsularis

Africa Proconsularis



1 – Acholla 2 - Agbia 3 – Bararus 4 – Bulla Regia 5-6 – Carthage 7 – Lepcis Magna 8 – Leptiminus 9 – Mactaris 10 – Sabratha 11 – Seressi 12 – Sufetula 13 – Thaenae 14 Thapsus 15-16 – Theveste 17 – Thibaris 18 – Thignica 19 – Thimisua 20 – Thuburbo Maius 21-23 Thysdrus 24 – Ulissipira 25 – Uthina 26 - Utica

4.5.1: THE EVIDENCE FOR SPECTACLES IN AFRICA PROCONSULARIS

Before we begin to examine whether the 'undersized' amphitheatres of Africa Proconsularis equated to low levels of popularity, it is important to briefly explore the evidence for all forms of spectacles in the province. Africa Proconsularis had one of the highest densities of spectacle structures of any provinces in the Roman West, as can be seen in the map (figure 13) above. Sear suggests that in Africa Proconsularis there are 'no less than 53 [theatres] attested, of which there are archaeological remains of 35'.[314] In terms of circuses, there were at least five permanent circuses in the province, though Foucher and Humphrey both pointed out the possibility of more.[315]

Though his work considers evidence from both Numidia and Africa Proconsularis, Renate Lafer's study of 192 spectacle related inscriptions shows that the epigraphic record somewhat mirrors the architectural record.[316] Of the 192 inscriptions, 95 (49.48%) of them mention theatres.[317] This evidence suggests towards theatrical spectacles as being the most popular form of spectacle, which in turn may explain the 'undersizedness' of some of the amphitheatres in the province. Amphitheatre spectacles are only represented in 28 (14.58%) of the inscriptions, while 22 (11.46%) mention circus spectacles.[318]

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[314] Sear 2006: 102-103. Sear suggests that there may have been ten more theatres in Tunisia, though he caveats this by pointing out the evidence for some of these theatres being extremely doubtful.
[315] Foucher 1964: 208. Also see Humphrey 1986: 320-321. Additionally, Sears (2011: 66-68.) correctly noted that all that chariot racing actually required was a patch of flat ground and perhaps temporary wooden stands.
[316] Lafer 2009: 179-183.
[317] Lafer 2009: 179-181. Also see Plate 51. Lafer notes that *ludi scaenici* were either given alone or performed together with athletic competitions, which could be an explanation for the lack of any stadia in Africa Proconsularis.
[318] Lafer 2009: 180-181. Also see Plate 51.

4.5.2: THE LARGE URBAN CENTRES

The highest population estimate is at Carthage, which is 85,750, while the lowest population estimates stands at 7,750 for both Bulla Regia and Thaenae.[319] This contrast suggests that amphitheatre culture was not restricted to the major cities of the province. Interestingly, the four earliest constructed amphitheatres in Africa Proconsularis can be categorised as 'undersized'.[320] This may suggest that these amphitheatres were built primarily to express their city's (or at least the elites of said cities) 'Romanness', and reflect the evolution of the region's relationship with Rome, rather than attempting to accommodate a high percentage of the local population.[321]

The disparity between the seating capacity of the first amphitheatre and the estimated population at Thysdrus, for example, is high: only an estimated 9,013 out of an estimated population of 45,000 could have visited the amphitheatre.[322] The fact that the amphitheatre received a small renovation within a generation or two of its original construction (increasing its estimated capacity by 1,649)[323] may suggest at an increase in popularity of amphitheatre spectacles, albeit a minor one, or perhaps an increase in the urban population.

[319] See Appendix, 'Undersized' Amphitheatres, Hackett No. AP #5,#6,#4 and #13 respectively.
[320] Laurence *et al* 2011: 272-279. These four amphitheatres (Carthage Phase 1, Lepcis Magna, Theveste Phase 1 and Thysdrus Phase 1) were all constructed prior to the 2nd century AD.
[321] Laurence *et al* 2011: 274-278.
[322] The estimated capacity of the first amphitheatre at Thysdrus is 9,013, some 36,000 lower than an estimated population of 45,000. There seems to be some confusion over the size of the first amphitheatre at Thysdrus. In both Laurence *et al* 2011 and Hanson 2016, the size that is given for the amphitheatre is actually the size of the arena, rather than the full size of the amphitheatre.
[323] See appendix, Hackett No. AP #22.

If we accept the notion that capacities represent popularity levels in a city, then amphitheatre spectacles seemingly only become popular at Thysdrus during the first half of the 3rd century AD, when the so-called Thysdrus 'Colosseum' was constructed.[324] This possible increase in popularity is supported by a number of mosaics with representations of amphitheatre spectacles which have been found either in Thysdrus or the surrounding area, which are closer in date to the construction of the Thysdrus 'Colosseum' than of the smaller amphitheatre.[325] These depictions suggest that, at least for those in African society who could afford mosaics in their homes, amphitheatre spectacles had become culturally significant by the Severan period.

The circus at Thysdrus is traditionally dated to roughly the same timeframe as the Thysdrus 'Colosseum', which could hint at an increase in the overall popularity of spectacles within the local population.[326] Foucher estimated that the capacity of the circus was likely to be between 50-55,000, though Humphrey argued that Foucher's estimation was probably too high, suggesting that the circuses' capacity was likely to be similar to the capacity of the Thysdrus 'Colosseum'.[327] It is important to note, however, that this new 'entertainment complex' may simply have been the result of the beneficence of Gordian III, rather than an increase in the popularity of spectacles.[328]

[324] See appendix, Hackett No. AP #20. Also see Bomgarnder 2000: 146-152.
[325] Dunbabin 1978: 66-67, 82. Also see Bomgardner 2011: 165-178.
[326] Humphrey 1986: 315-317. The lack of a theatre at Thysdrus may suggest at the populace having more of an appetite for violent spectacles rather than the lack of necessary funds.
[327] Foucher 1964: 207-213. Also see Humphrey 1986: 315-317.
[328] Humphrey 1986: 315-317. Sears (Sears 2011: 110-112.) argues that Thysdrus was the recipient of significant Imperial embellishment, with the majority of the building work being 'almost certainly related to Gordian III's elevation to the throne'.

4.5.3: THE 'SMALLER' CITIES

It is important that the 'smaller' cities of Africa Proconsularis are also considered, so as to be able to determine the levels of popularity across a wider range of urban settlements.[329] The cities and the relative data which will be discussed in this section are presented in the table below (figure 19):

Figure 19: 'Undersized' Amphitheatres in the 'Smaller' Cities of Africa Proconsularis

Amphitheatre/Place	Hackett No.	Province	Construction Date	Capacity Estimate	Population Estimate	Capacity Difference
Leptiminus	AP #8	Africa Proconsularis	AD 100 – AD 200	9,069	13,000	-3,931
Sufetula	AP #12	Africa Proconsularis	AD 160 – AD 200	6,516	12,000	-5,484
Thapsus	AP #14	Africa Proconsularis	AD 100 – AD200	4,441	11,000	-6,559
Theveste (Phase 1)	AP #15	Africa Proconsularis	AD 74 – AD 79	9,402	16,750	-7,348
Ulissipira	AP #24	Africa Proconsularis	AD 100 – AD 200	5,354	15,000	-9,646

One of the clear commonalities between this set of amphitheatres are the construction dates. Apart from Theveste (Phase 1), each of these amphitheatres were constructed during the 2nd century AD.[330] The traditional explanation of the regions evolving relationship with

[329] In this case, 'smaller' refers to the cities with relatively low population levels rather than their political or economic standing within the province.
[330] The uncertainness of these dates is an unfortunately common problem with the vast majority of amphitheatres which will hopefully be resolved through future excavation/re-excavations.

Rome is certainly valid here. However, we have to consider whether this evolution was apparent at all levels of society. The financing of these amphitheatres would have predominantly, if not wholly, come from the elite echelons of society. It is entirely plausible that these smaller amphitheatres were intended only intended for small portions of society, rather than the whole populace. This may be one of the more likely explanations for the markedly small capacities of the amphitheatres at Thapsus and Ulissipira. We can reasonably rule out the popularity of other spectacles as being influencing factors during the construction of both amphitheatres, as only Ulissipira had another spectacle structure, in the form of a modest theatre.[331] Both cities have relatively low levels of monumentality, which could be an indication of two relatively weak economies and therefore explain the comparatively small amphitheatres built at said cities.[332]

4.6: CONCLUSIONS: A MIXED PICTURE

The aim of this chapter was to determine whether 'undersized' amphitheatres indicated low levels of popularity within an urban community or wider region. We have seen that numerous factors could have been considered during the construction of an amphitheatre, something we also saw throughout the previous chapter.

One of the factors we considered was the prevalence of other spectacles in an urban place, and how this could have impacted the construction and design process of an amphitheatre. In Trier, for example, the archaeological evidence seems to suggest that by the early 4th century AD amphitheatre spectacles were less culturally important than circus spectacles, as

[331] Sear 2006: 288.
[332] Hanson 2016.

the amphitheatre there was not renovated or improved as part of the city-wide imperial building project which saw the construction of a huge circus.[333] We also considered the construction of amphitheatres for specific audiences, such as the first amphitheatre at Lugdunum, which seemed to have been specifically for the elites of the Gallic provinces, rather than the non-elite inhabitants of Lugdunum.[334]

This chapter has also shown that it is somewhat difficult to determine popularity levels in the most densely populated cities of the empire. Though the amphitheatres at Carthage and Rome meet the definition of 'undersized' (as was set out at the beginning of this chapter), we have to remember that the amphitheatre likely had a 'maximum size', due to its architectural form. However, this chapter has shown that we can come to more definitive conclusions when considering the medium-sized and smaller cities of the Roman empire.

[333] Von Massow 1949: 149-169. Also see Reusch 1966: 216-222 and Humphrey 1986: 425-527.
[334] Fishwick 1987-1992: 137 and 268. Also see Goodman 2007: 129-132.

CONCLUSION: QUANTIFYING LEVELS OF POPULARITY?

The main aim of this thesis was to examine the levels of popularity for amphitheatre spectacles in the Roman West. The primary method used to meet this aim was through the analysis of the estimated seating capacity of an amphitheatre and the estimated population levels of its immediate urban surroundings, which can be best described as a 'capacity-to-population ratio'. This method is not an imperfect one and must be used with a degree of caution (as has been noted throughout this thesis), though it is currently the only feasible method of examining popularity through statistical data on a wide-scale basis. It is also a method which can be developed and refined with the increasing quality and accuracy of archaeological excavation and research.

A secondary aim was to dismiss some of the long-lasting biases surrounding amphitheatre culture, in addition to attempting to highlight the need of a proper examination of popularity in relation to public entertainment, not just amphitheatre spectacles, in the Roman world. Traditionally, scholars have determined (or more often assumed) that amphitheatre culture was fanatically supported equally throughout the empire.[335] However, this view is an over-simplification of the relationship that members of Roman society would have had with amphitheatre culture, which would have been more complex and nuanced than has previously been suggested. Reactions to amphitheatre culture would have been furthered nuanced by the societal and cultural differences that were apparent between the different regions of the Latin West, a prime example being that of the 'local variant' of the

[335] Hopkins 1983: 1-27, Hopkins and Beard 2005: 75-100. Also Toner 1995.

amphitheatre in the Gallic provinces.[336] It also disregards the factors of time, tradition and the subtlety of place that would have informed the average Roman's connection with amphitheatre culture (and therefore the overall levels of popularity).

Through the case studies conducted in chapters 3 and 4, we aimed to hypothesise the levels of popularity for amphitheatre spectacles in specific geographical areas. In chapter 3, we examined three regions of the Roman empire which were either highly significant in the development of amphitheatre culture, or where a high percentage of the amphitheatres in the area could be categorised as 'oversized': Campania, Etruria and Baetica. In Campania only 3 of the 16 known amphitheatres can be categorised as 'oversized', however, the evidence suggests that amphitheatre culture had significant cultural and social importance, and that the 'cultural network' between individual towns such as Capua, Pompeii and Nola, rightly suggested by Benefiel, was even more important than she argued.[337] The number of amphitheatres in a relatively small area suggests a high level of 'demand' for amphitheatre spectacles from the local populace, who were willing to travel a fair distance to amphitheatre spectacles. The archaeological evidence considered from Etruria indicates that amphitheatre culture became increasingly popular throughout the 1st century AD, as 9 of the 11 amphitheatres were likely to have been constructed by the end of the century.[338] In Baetica, we saw that 4 of the 8 amphitheatres could be categorised as 'oversized', each of which having a seating capacity estimate of over 25,000.[339] Across the three case studies, we saw the potential for the existence of cultural networks for amphitheatre spectacles,

[336] Dumasy *et al* 1989: 43-75.
[337] See Appendix IV, 'Oversized' Amphitheatres, Hackett No. ITAL CAMP #10, #11 and #15.
[338] See Appendix V, 'Main Database', 'Etruria'.
[339] See Appendix V, 'Main Database', 'Hispania Baetica'.

which would have not only connected neighbouring urban centres but rural settlements also. These networks were facilitated by the well-established regional infrastructure, particularly the ever-improving road systems, the thriving market economies and the steady increase of population density in each of the three areas. Overall, the argument could certainly be made that amphitheatre culture experienced increasing levels of popularity throughout Campania, Etruria and Baetica, leading to the building of numerous high-capacity amphitheatres by the middle of the 2nd century AD.

In the fourth chapter, we examined 'undersized' amphitheatres in the context of two specific geographical areas, the Three Gauls, Gallia Narbonensis and Africa Proconsularis, and aimed to determine whether popularity was a crucial factor in why these amphitheatres were 'undersized'. In this thesis' examination of the amphitheatres in the Three Gauls and Narbonensis, 14 of the 57 amphitheatres (24.56%) were categorised as 'undersized'.[340] We then explored the importance of 'mixed spectacle edifices', a building type which could host either amphitheatre or theatrical spectacles, [341] as well as examining the evidence for 'undersized' amphitheatres at religious sites. The evidence from each of the four provinces suggest at what can be best described as a 'mixed picture', indicating a complex situation where we cannot make clear cut assumptions about the levels of popularity, nor the specific reasons for an amphitheatre being 'undersized'. For example, 16 of the 57 amphitheatres (28.07%) across the four provinces can be described as 'oversized',[342] which only furthers the complexity of the situation across the four Gallic provinces. In Africa Proconsularis, 14 of

[340] See Appendix V, 'Main Database', 'Gallia Aquitania', 'Gallia Belgica', 'Gallia Lugdunensis' and 'Gallia Narbonensis'.
[341] Dumasy *et al* 1989: 43-75.
[342] See Appendix IV, 'Oversized' Amphitheatres, 'Gallia Aquitania', 'Gallia Belgica', 'Gallia Lugdunensis' and 'Gallia Narbonensis'.

the 26 amphitheatres (53.84%) can be categorised as 'undersized'.[343] This figure could be read to suggest that amphitheatre spectacles experienced a low level of popularity in the province, especially when considering in conjunction with the substantial amount of evidence for other forms of spectacles, be that through epigraphical, material cultural or architectural evidence. However, there is also an abundance of evidence for amphitheatre culture; Africa Proconsularis has the highest number of amphitheatres per province of anywhere in the Latin West, and there is a considerable amount of material culture, in the form of mosaics and inscriptions for example, that can be related to amphitheatre culture.[344]

Throughout the case studies, we explored the potential 'influencing factors' that could have been in play during the construction of an amphitheatre so as to explain an amphitheatre's 'oversizedness' or 'undersizedness'. Traditionally, an amphitheatre's size (regardless of whether that is large or small) has been explained by one major factor, such as the eurgetism of local or provincial elites or inter-urban competitiveness, rather than a combination of social, cultural and economic elements. What this thesis has supported, however, are approaches that stress that there were likely a plethora of influencing factors involved during the construction of an amphitheatre which we must consider collectively, rather than individually.

The research undertaken in this thesis can be considered as significant for a number of reasons. Firstly, for the first time since Golvin's work, amphitheatre seating capacities have

[343] See Appendix III, 'Undersized' Amphitheatres, 'Africa Proconsularis'.
[344] See Appendix V, 'Main Database'.

been reassessed at length, and the inaccuracies in his work have been addressed at length. Secondly, two significant trends have been identified: ‘oversized/regional’ and ‘undersized’ amphitheatres, especially in the case of the former, as some 36.1% of amphitheatres can be considered as ‘oversized’. This research has arguably shown that amphitheatres were not built solely for urban populaces, and that it was highly likely that rural populations were considered to be potential spectators for spectacles in areas across the Latin West.

Ultimately, the research presented within this thesis has shown the possibility for a better understanding of the social and cultural impact of amphitheatre culture in the Roman world. Continued investigations are needed to develop and modernise of our understanding of the importance of public entertainment in the Roman world, as well as to develop our understanding of the importance of an everyday culture to the everyday Roman.

APPENDIX I: DATABASE DISCUSSION

The database which was compiled during the course of this thesis requires a brief discussion. This discussion will focus on the main aspects of the database, as well as some of the decisions made during its development.

Database Key:

A number of the entries within this database are highlighted to denote certain differences between them and the unhighlighted entries. These are explained in the key below:

- Blue – Gallo-Roman Semi-Amphitheatre
- Green – Theatre-Amphitheatre
- Orange – Military (L – Legionary, A – Auxiliary)

The Need for a Database:

During the early phases of this thesis, it became evident that some form of database would have to be developed to meet the principal aims of my research. This is for a number of reasons. Firstly, the data presented in Golvin's work, while useful as a starting point, is problematic (as discussed in Chapter 2 of this thesis), and thus needed some re-evaluation. Secondly, it is impossible to manipulate Golvin's data, as no digital form exists, an issue which this database will largely rectify. Thirdly, due to the lack of digitisation, any findings or data from excavations of amphitheatres discovered since the publication of Golvin's work (1988) are not easy to compare alongside the amphitheatres present in Golvin's tables. This also applies to any re-excavations or continued excavations which may have occurred since 1988.

Dates Used for Provinces:

The provinces/regions which are named in this database are from the Severan period.

Naming Standards:

For the majority of the entries in this database, the name by which the place is best known has been used.

Capacity and Population in Military Contexts:

While the methods of calculation in this thesis can largely be applied to amphitheatres directly linked to a military site, there are some caveats that have to be discussed.

Firstly, civilian sites directly linked to military sites, and the overall population levels at military sites have to be considered. It is common to find settlements outside of forts across the Roman Empire.[345] These *vici* or *canabae* (for auxiliary and legionary fortresses respectively) sometimes developed into fully-fledged towns in their own right, such as Chester.[346] It is easy to imagine the people who inhabited these military settlements as spectators at the amphitheatres, as these people were usually directly linked to the soldiers who garrisoned the fortresses.[347] However, it can be difficult to determine the population levels in these settlements. Sommer argues that 'the size of the population of a military vicus seems quite difficult to imagine', meaning that accurately determining a military settlements population is difficult. Additionally, this makes it difficult to determine whether

[345] Sommer 1984: 1-4.
[346] Hanel 2007: 395-416. Also see Wilmott and Garner 2018: *passim.*
[347] Sommer 1984: 34-40.

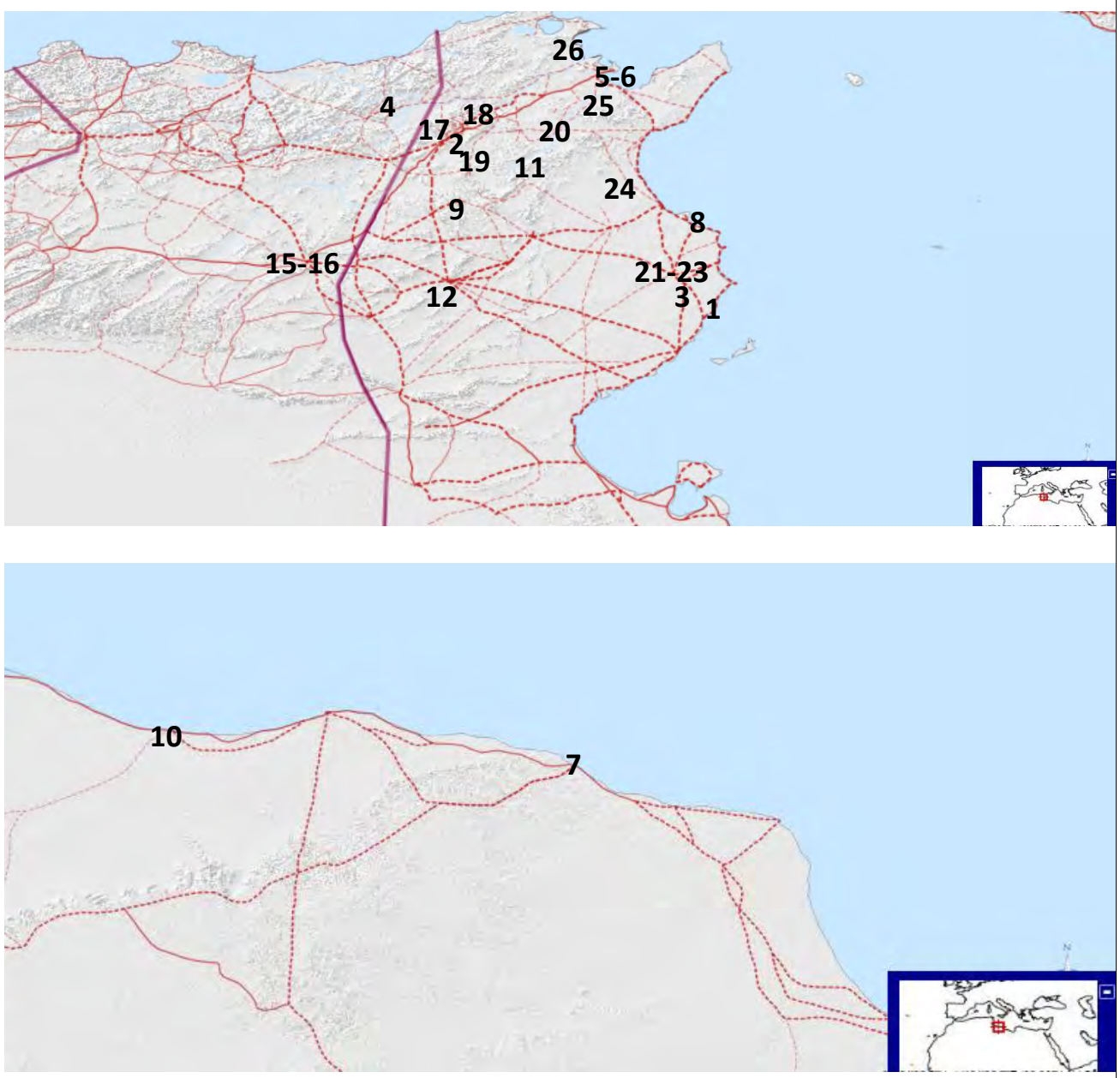
these populations were taken into account during the construction of military amphitheatres.[348]

[348] Sommer 1984: 32.

APPENDIX II: MAPS

AFRICA PROCONSULARIS

Africa Proconsularis



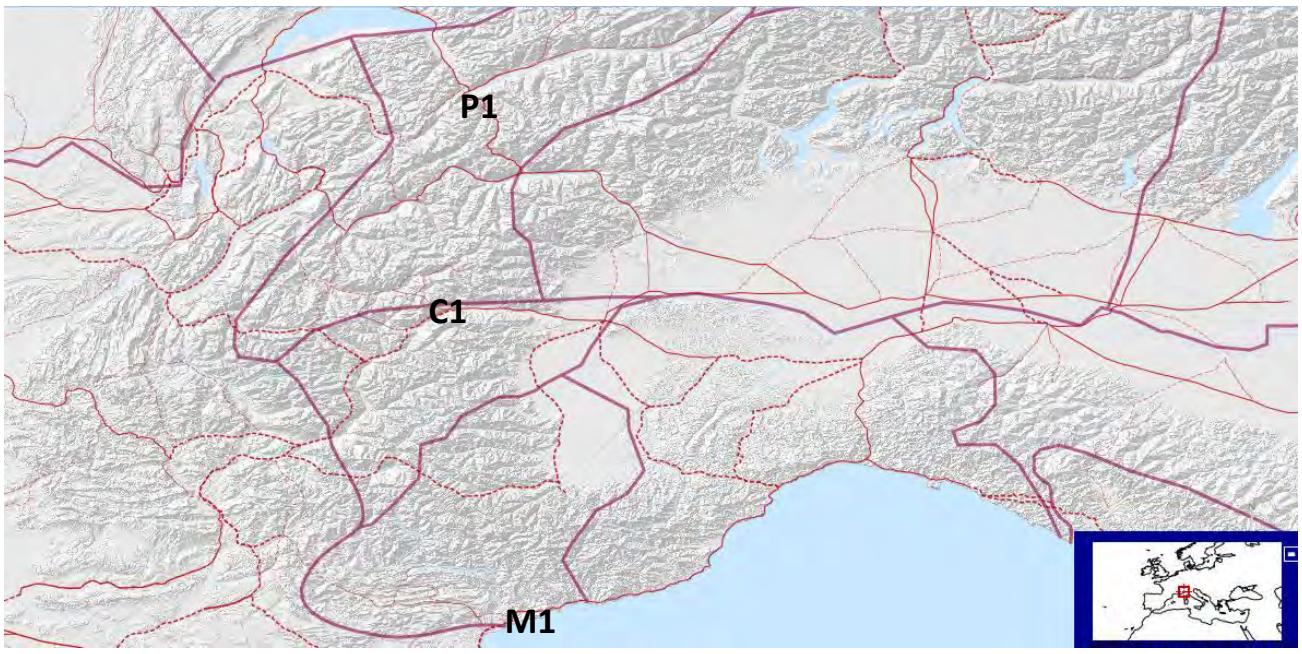
1 – Acholla 2 - Agbia 3 – Bararus 4 – Bulla Regia 5-6 – Carthage 7 – Lepcis Magna 8 – Leptiminus

9 – Mactaris 10 – Sabratha 11 – Seressi 12 – Sufetula 13 – Thaenae 14 Thapsus 15-16 – Theveste

17 – Thibaris 18 – Thignica 19 – Thimisua 20 – Thuburbo Maius 21-23 Thysdrus 24 – Ulissipira

ALPES COTTIAE, ALPES MARITIMAE AND ALPES POENINAE

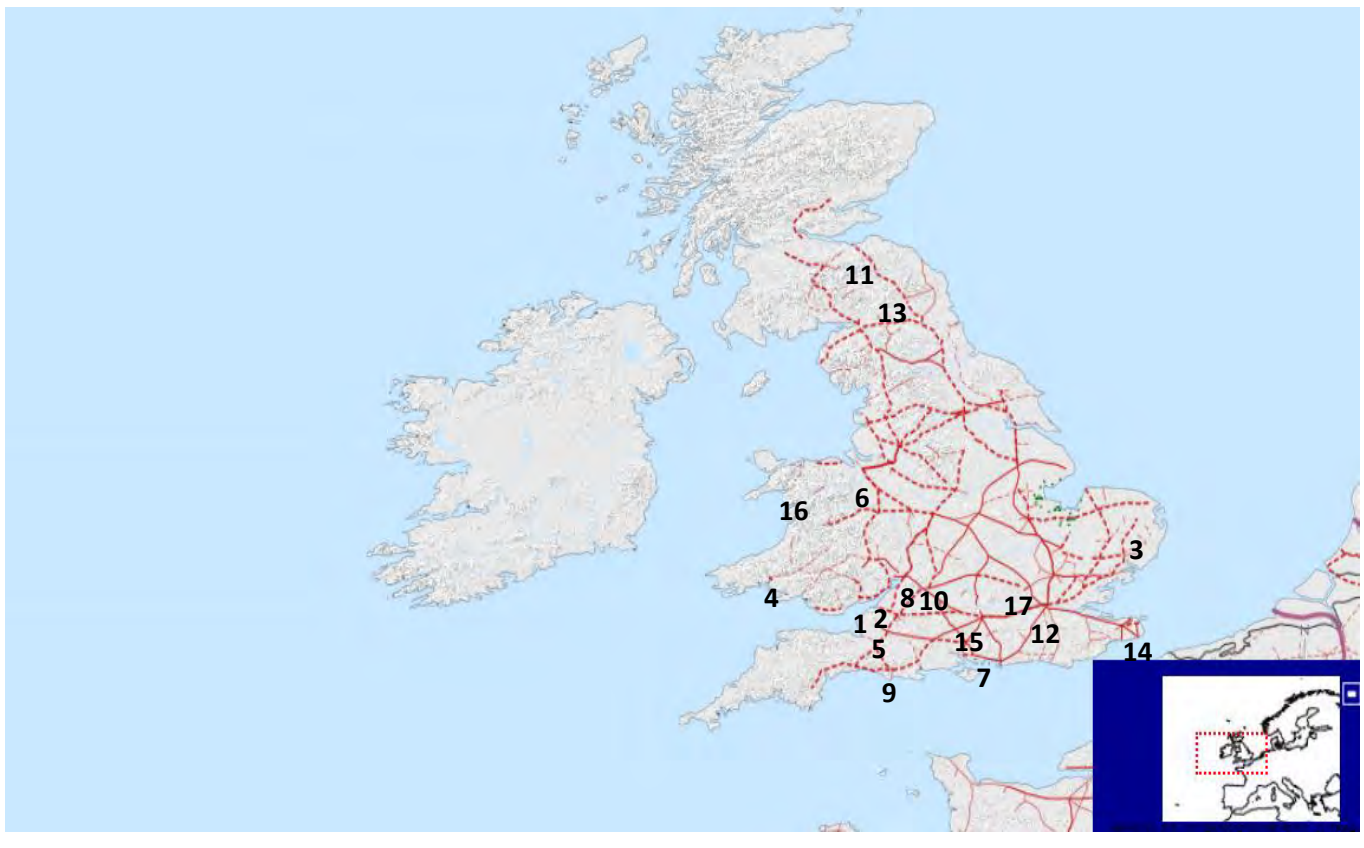
Alpes Cottiae, Alpes Maritimae and Alpes Poeninae



M1 – Cemenelum C1 – Segusium P1 - Octodurus

BRITANNIA

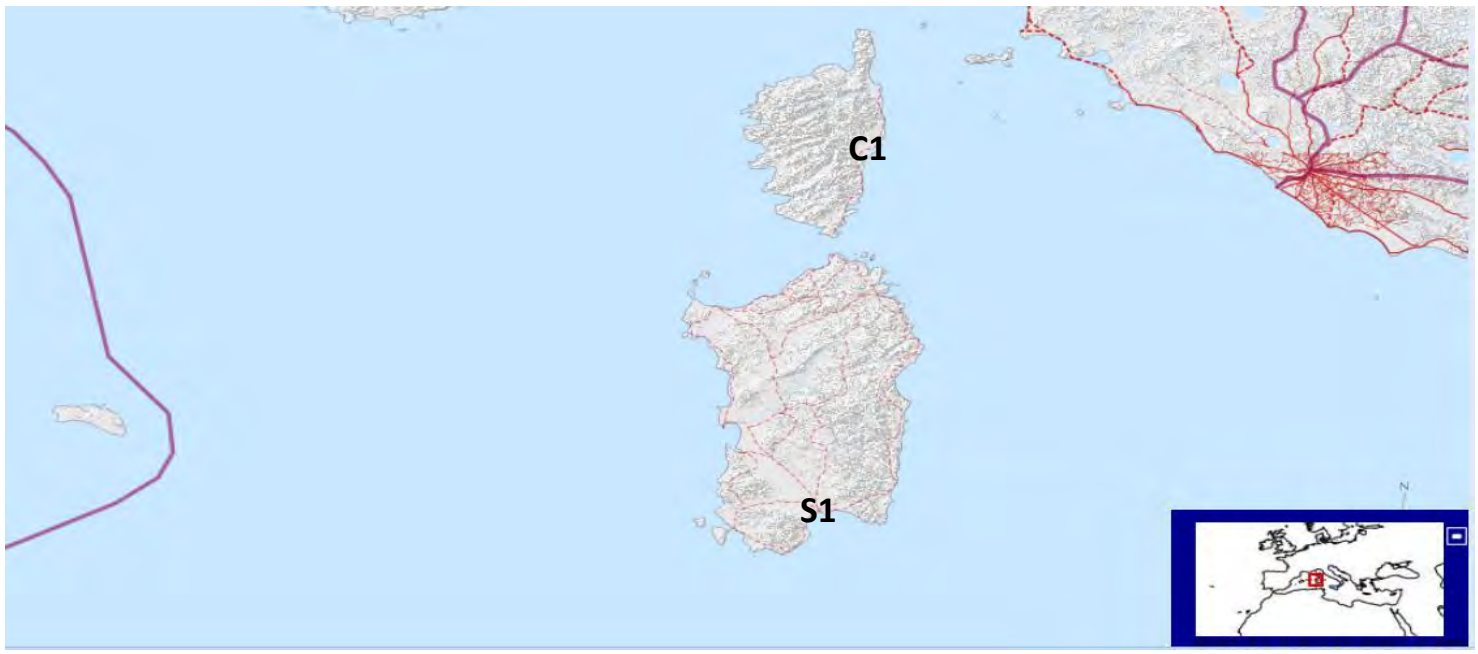
Britannia



1 – Caerleon 2 – Caerwent 3 – Caistor St Edmund 4 – Carmarthen 5 – Charterhouse-On-Mendip 6 – Chester 7 – Chichester 8 – Cirencester 9 – Dorchester 10 – Frilford 11 – Inveresk 12 – Londinium 13 – Newstead 14 – Richborough 15 – Silchester 16 – Tomen-y-Mur 17 - Verulamiun

CORSICA AND SARDINIA

Corsica and Sardinia



C1 – Aleria S1 - Caralis

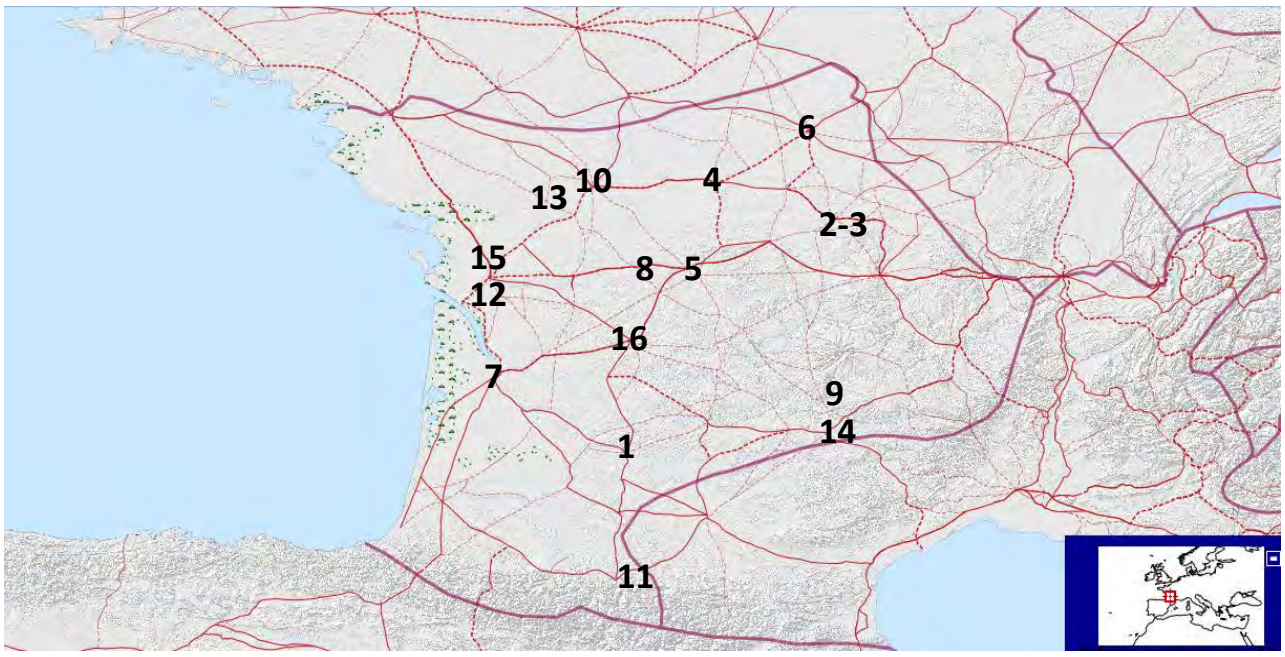
DALMATIA

Dalmatia

1 – Burnum 2 - Salona

GALLIA AQUITANIA

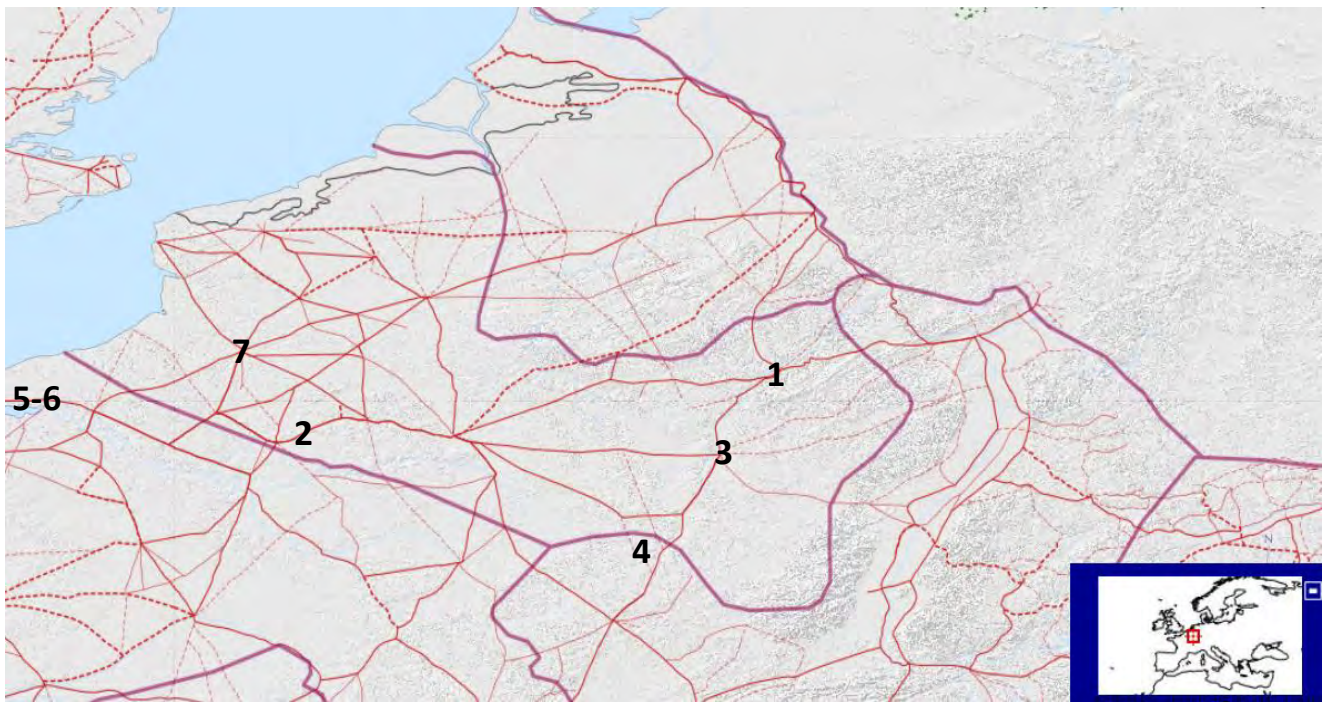
Gallia Aquitania



1 – Aginnum 2-3 – Aquae Neri 4 – Argentomagus 5 – Augustoritum Lemovicum 6 – Avaricum 7 – Burdigala 8 – Cassionmagus 9 – Catiriacum 10 – Limonum 11 – Lugdunum Convenarum 12 – Saintes 13 – Sanxay 14 – Segodunum 15 – Surgeres 16 - Vesunna

GALLIA BELGICA

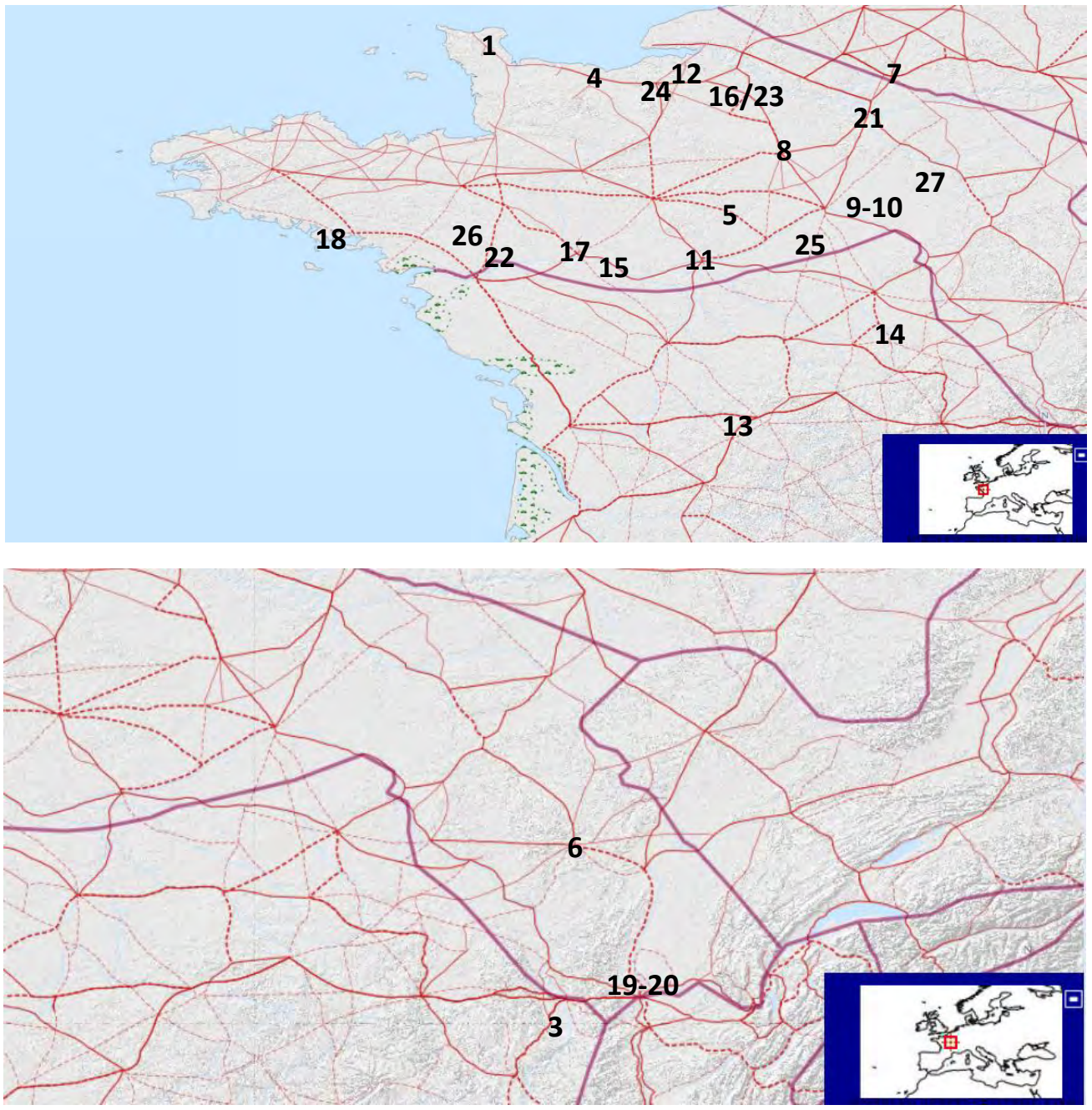
Gallia Belgica



1 – Augusta Treverorum 2 – Champlieu 3 – Divodurum Mediomatricorum 4 – Grannum 5-6 – Iuliobonna 7 - Samarobriva

GALLIA LUGDUNENSIS

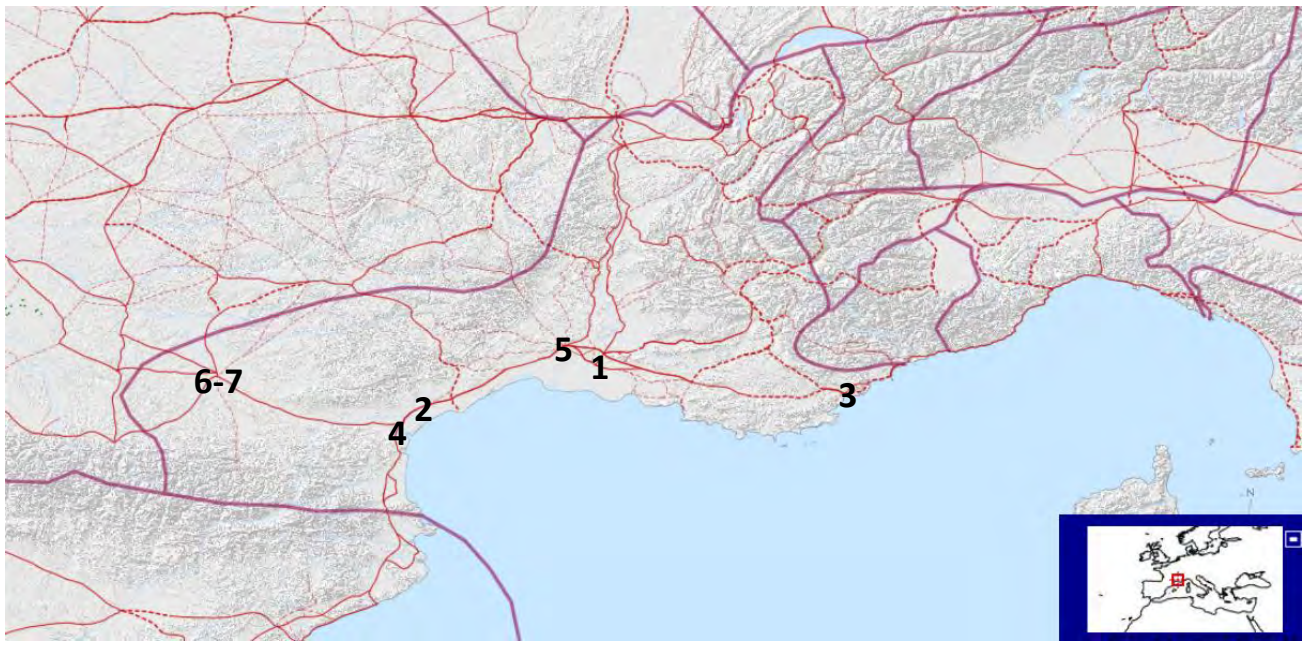
Gallia Lugdunensis



1 – Alauna 2 – Alleants 3 – Aquae Segetae 4 – Aregenua 5 – Areines 6 – Augustodunum 7 – Augustomagus Sylvanectum 8 – Autricum 9 – Bonnee 10 – Bouzy-la-Foret 11 – Caesarodunum Turonum 12 – Canetonum 13 – Chenevieres 14 – Derventum 15 – Gennes 16 – Gisacum 17 – Iuliomagus 18 – Locamariaquer 19-20 – Lugdunum 21 – Lutetia Parisiorum 22 – Mauves 23 – Mediolanum Aulercorum 24 – Noviomagus

GALLIA NARBONENSIS

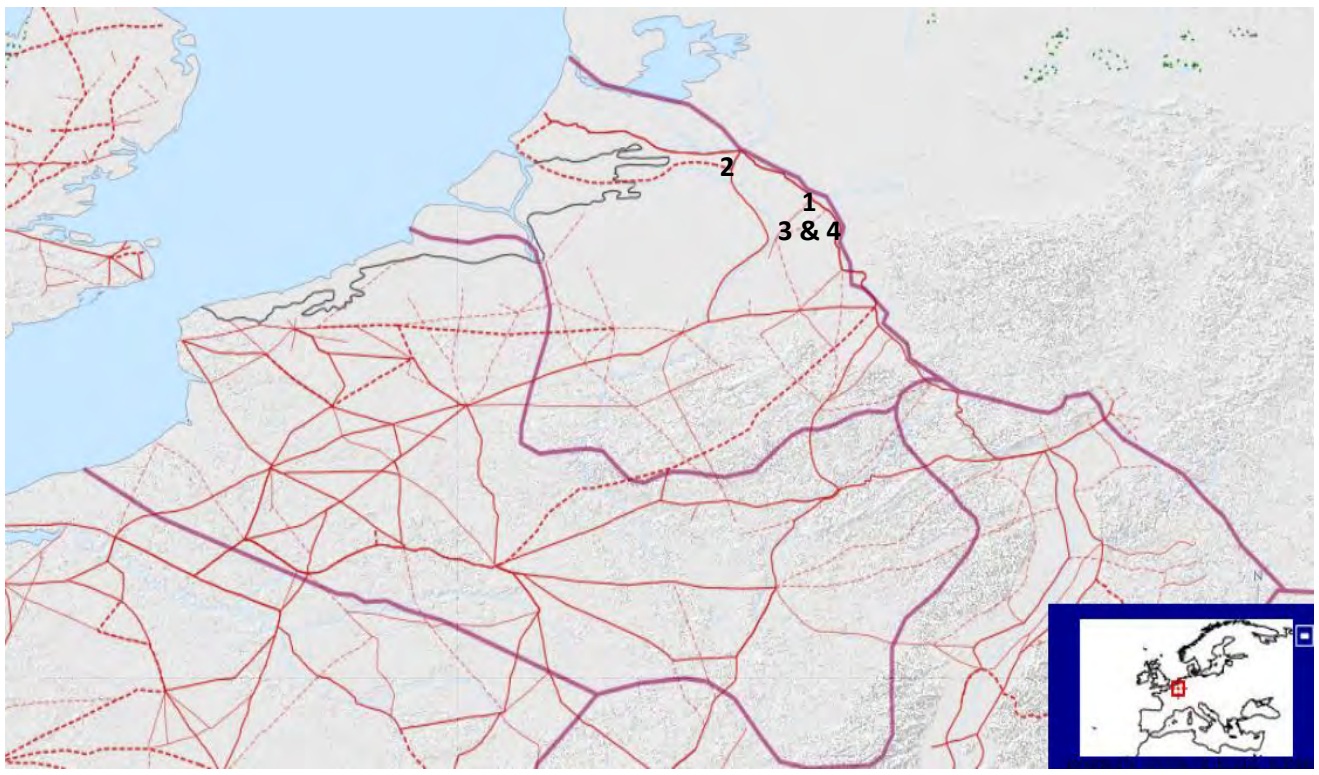
Gallia Narbonensis



1 – Arles 2 – Baeterrae 3 – Forum Iulii 4 – Narbonne 5 – Nimes 6-7 – Tolosa (Toulouse)

GERMANIA INFERIOR

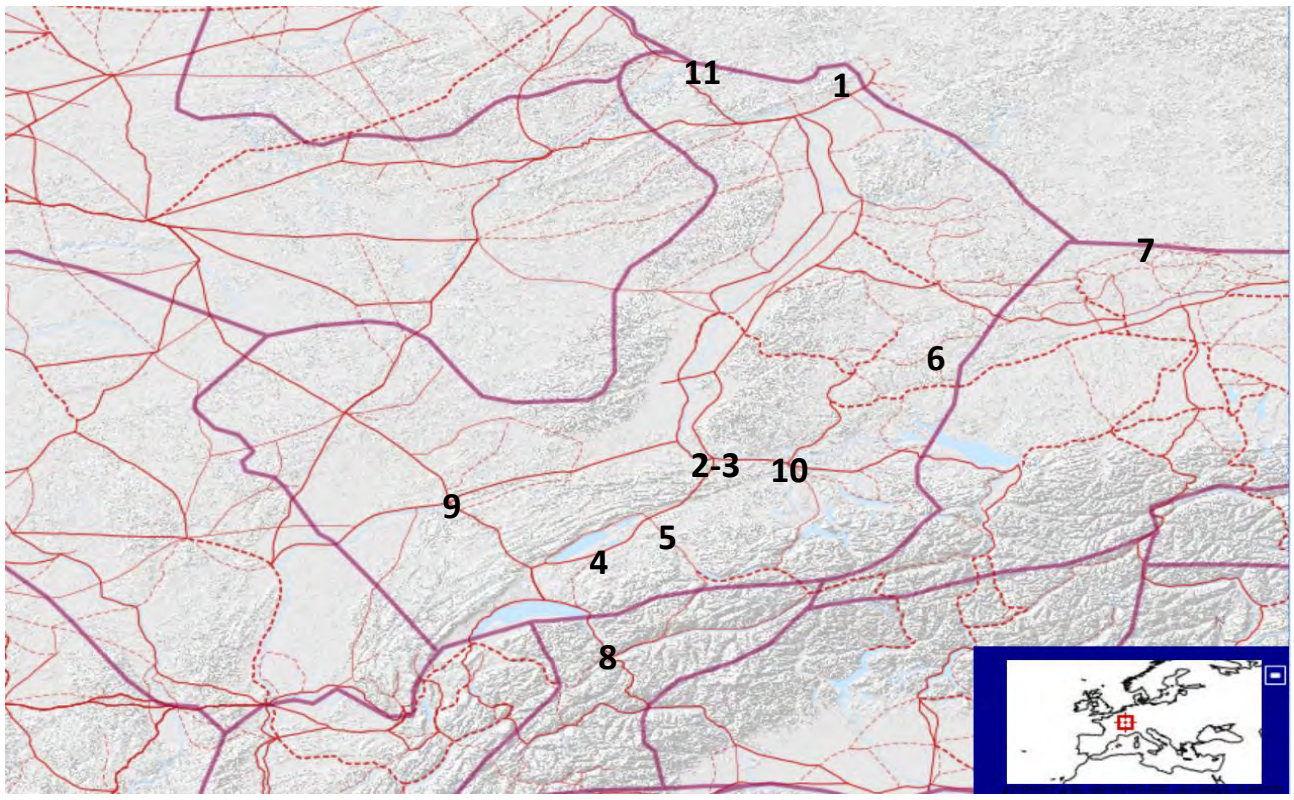
Germania Inferior



1 – Castra Vetera 2 – Noviomagus Batavoium 3&4 - Xanten

GERMANIA SUPERIOR

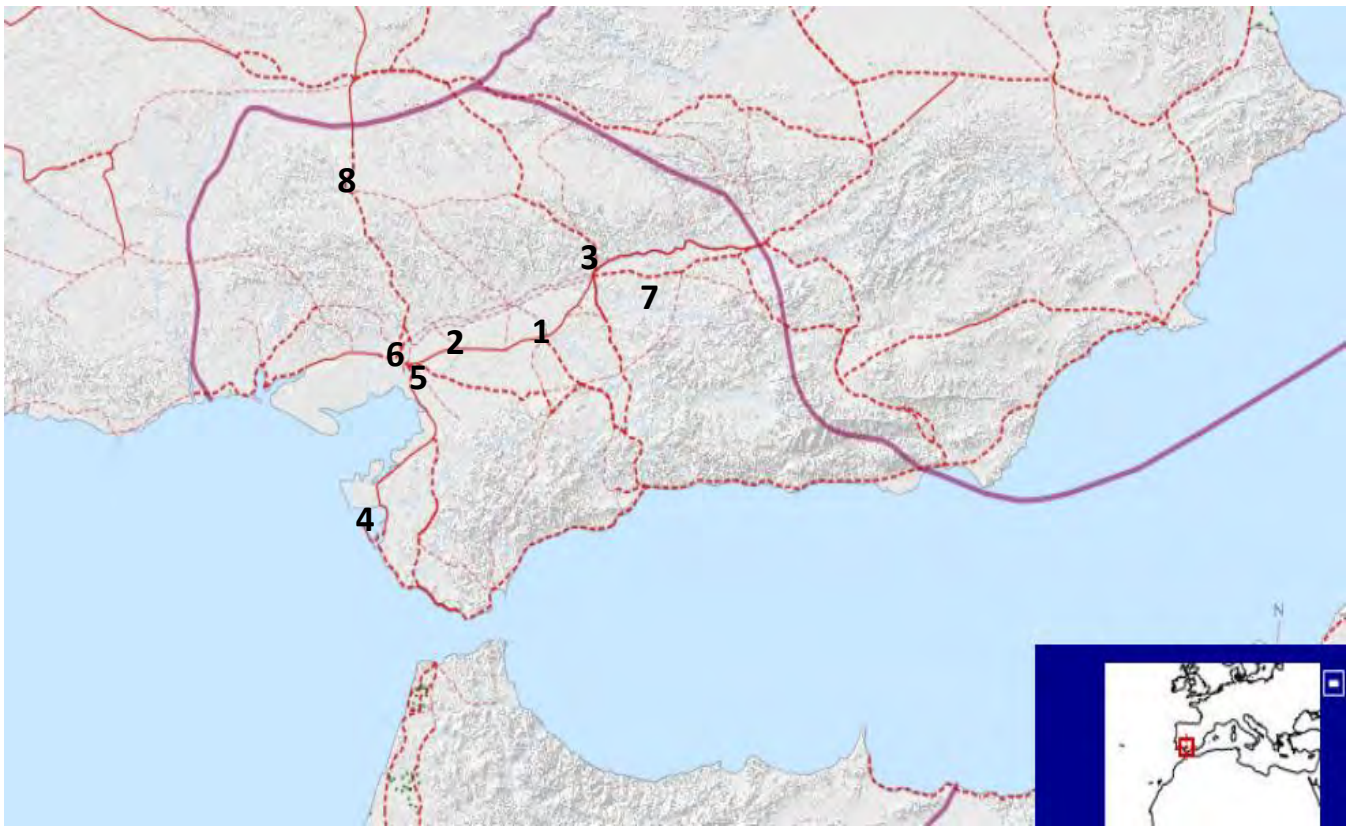
Germania Superior



1 – Arnsburg 2&3 – Augusta Raurica 4 – Aventicum 5 – Bern-Enge 6 – Burladingen 7 – Dambach 8 – Octodurus 9 – Vesontio 10 – Vindonissa 11 - Zugmantel

HISPANIA BAETICA

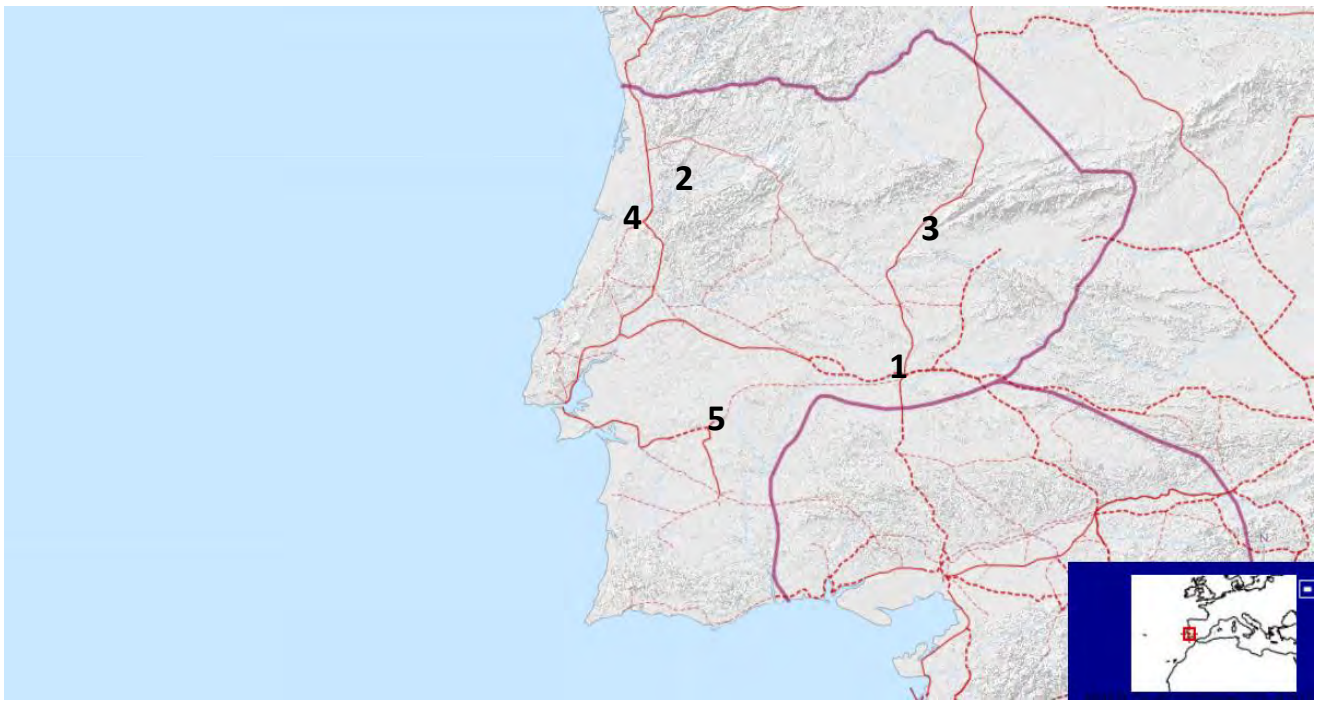
Hispania Baetica



1 – Astigi 2 – Carmo 3 – Corduba 4 – Gades 5 – Hispalis 6 – Italica 7 – Torreparedones 8 – Ugultunia

HISPANIA LUSITANIA

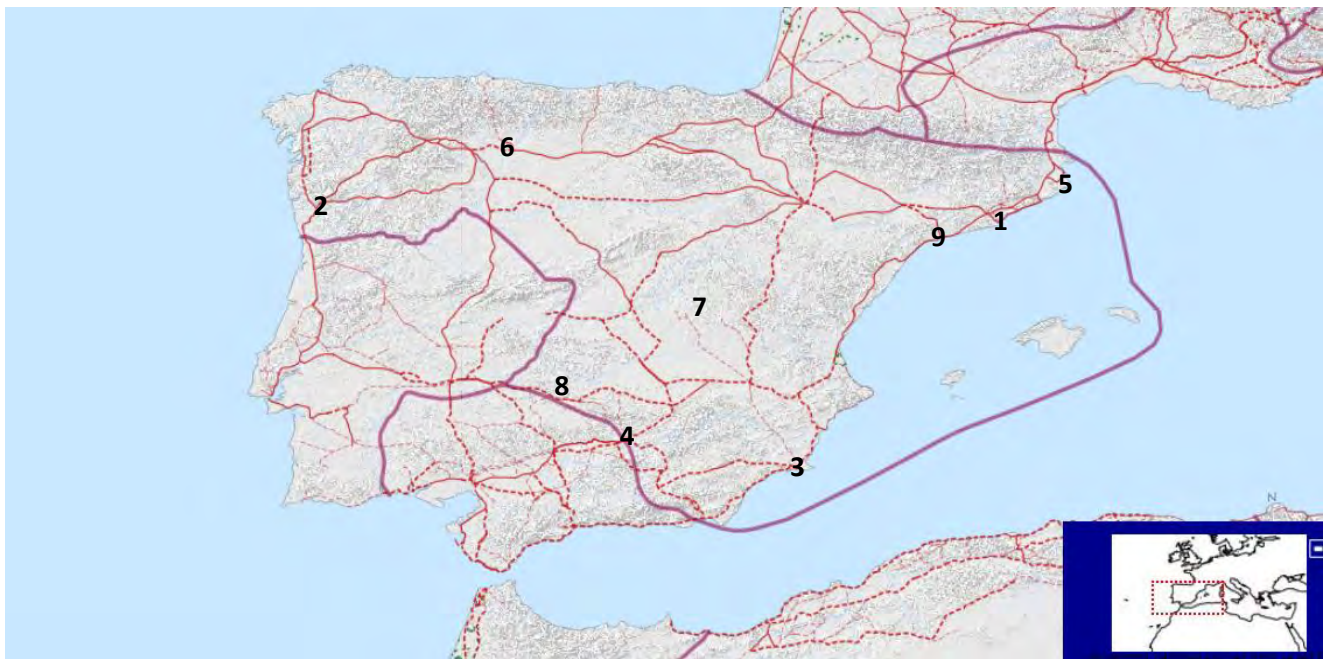
Hispania Lusitania



1 - Augusta Emerita 2 - Bobadela 3 - Capera 4 - Conimbriga 5 - Ebora

HISPANIA TARRACONESIS

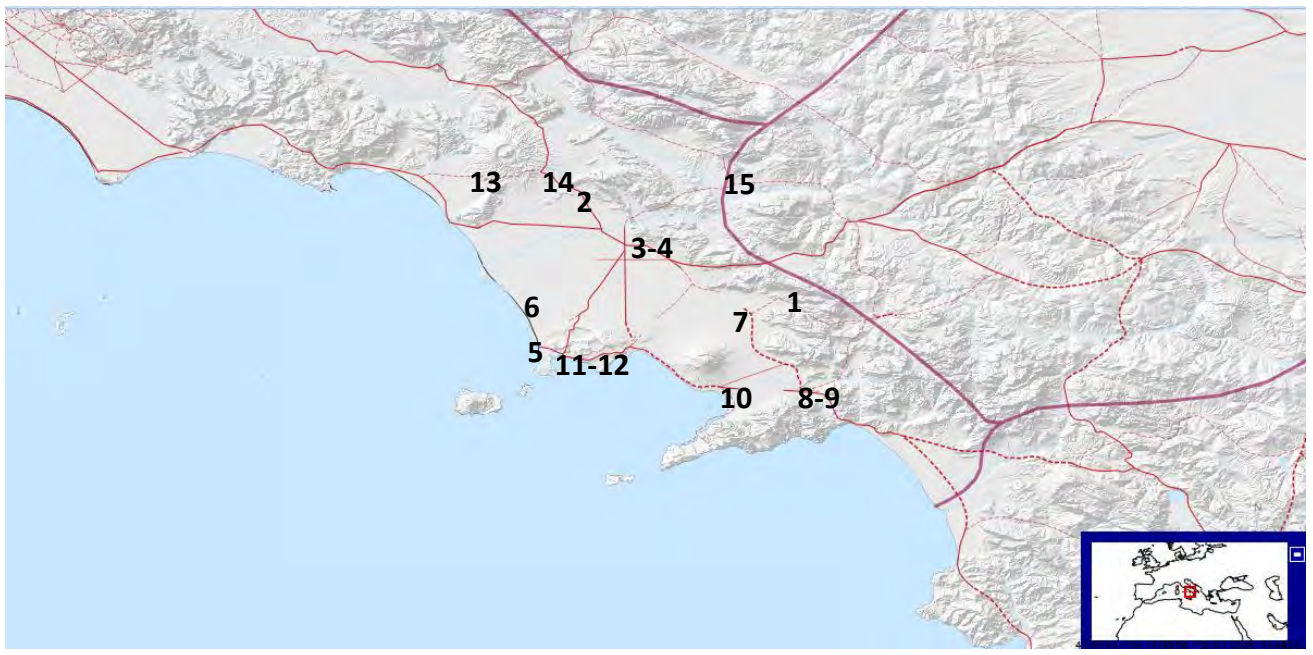
Hispania Tarraconensis



1 – Barcino 2 – Bracara 3 – Carthago Nova 4 – Castulo 5 – Emporiae 6 – Leon 7 – Segobriga 8 – Sisapo

ITALIA REG. I CAMPANIA

Italia Reg. I Campania

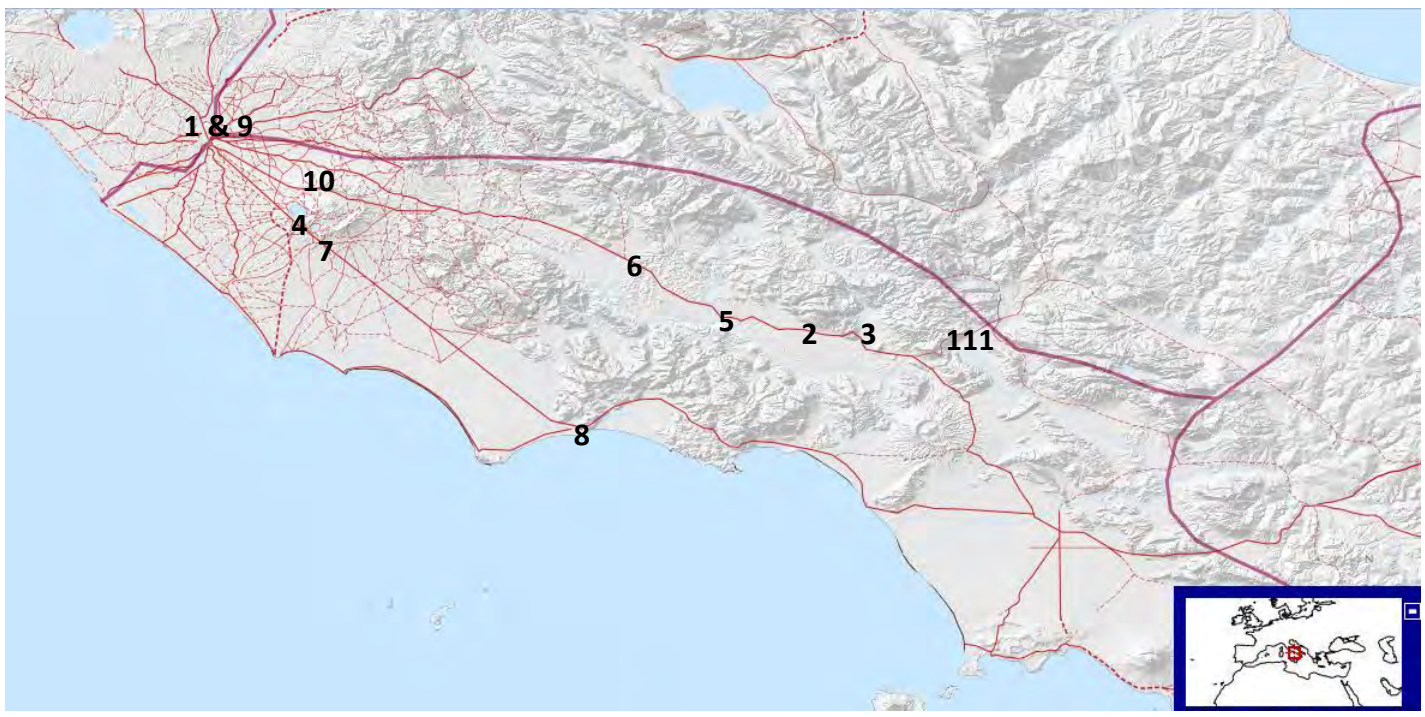


1 – Abella 2 – Cales 3-4 – Capua 5 – Cumae 6 – Liternum 7 – Nola 8-9 – Nuceria 10 – Pompeii

11-12 – Puetoli 13 – Suessa Aurunca 14 – Teanum Sidicinum 15 - Telesia

ITALIA REG. I LATIUM

Italia Reg. I Latium

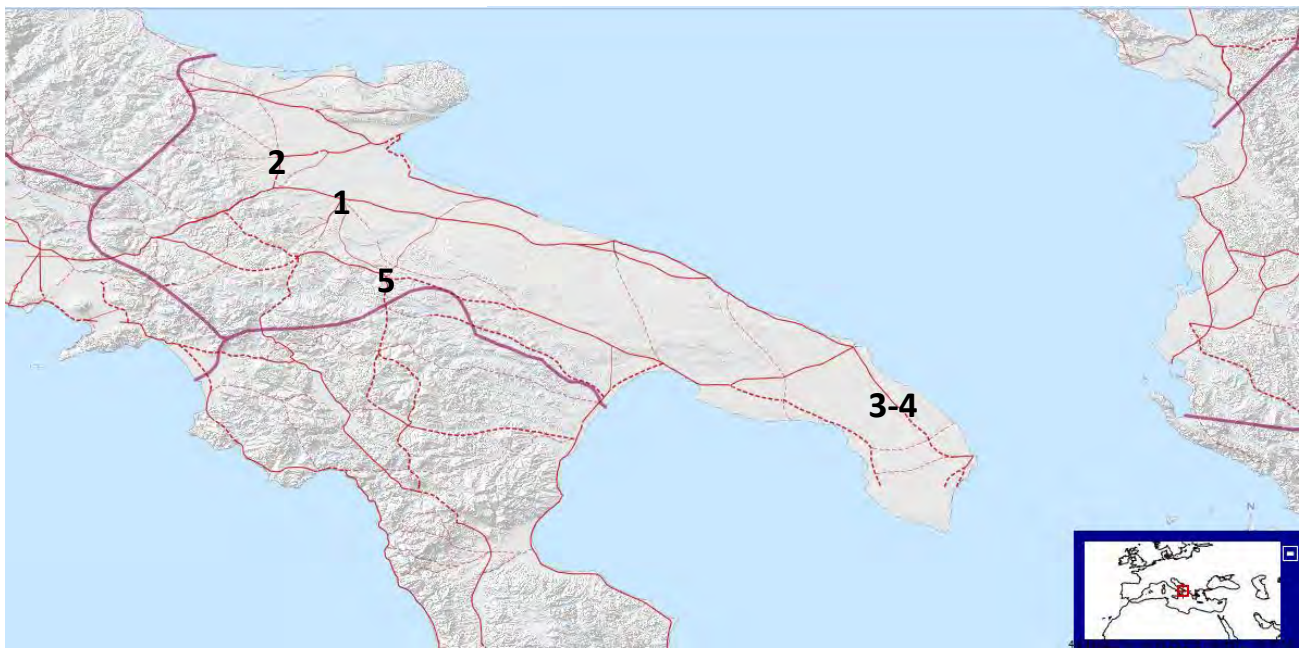


1 – Anfiteatro Castrense (Rome) 2 – Aquinum 3 – Casinum 4 – Castra Albana 5 – Fabrateria Nova

6 – Frusino 7 – Lanuvium 8 – Tarracina 9 – The Colosseum 10 – Tusculum 11 – Venafrum

ITALIA REG. II APULIA

Italia Reg. II Apulia



1 – Herdoniae 2 – Luceria 3-4 – Lupiae 5 - Venusia

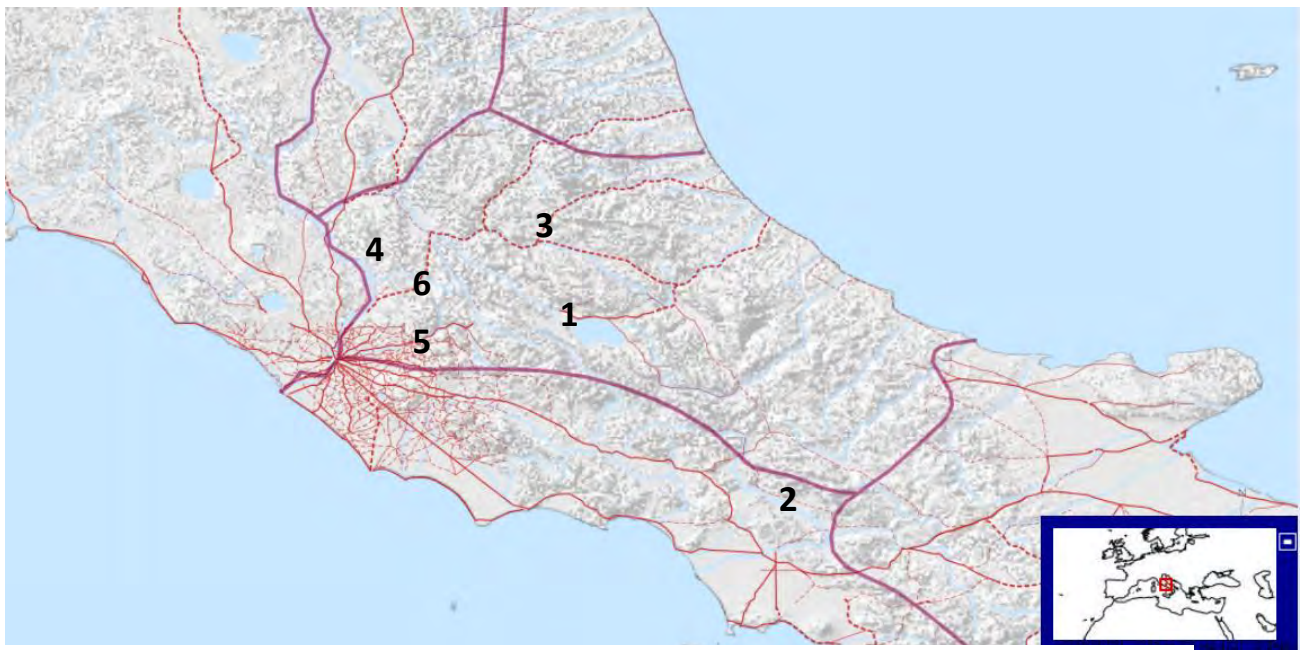
ITALIA REG. III LUCANIA

Italia Reg. III Lucania

1 – Grumentum 2-3 - Paestum

ITALIA REG. IV SAMNIUM-SABINA

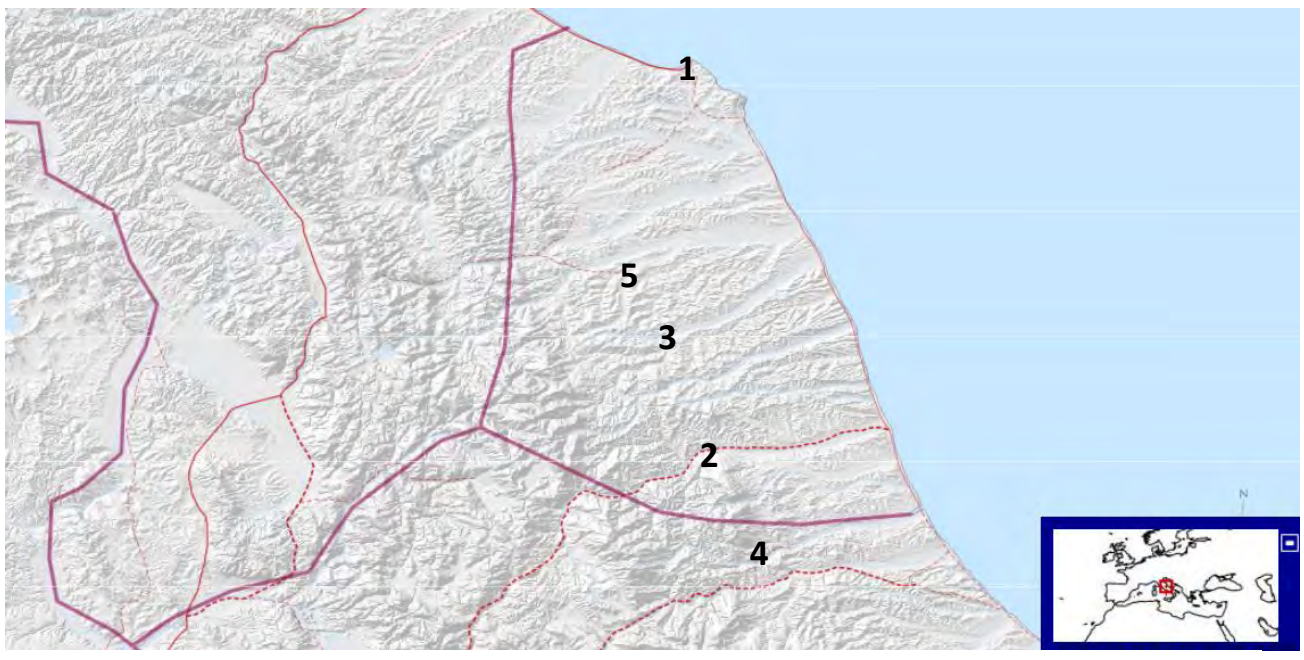
Italia Reg. IV Samnium-Sabina



1 – Alba Fucentia 2 – Alifae 3 – Amitemum 4 – Forum Novum 5 – Tibur 6 – Trebula Mutesca

ITALIA REG. V PICENUM

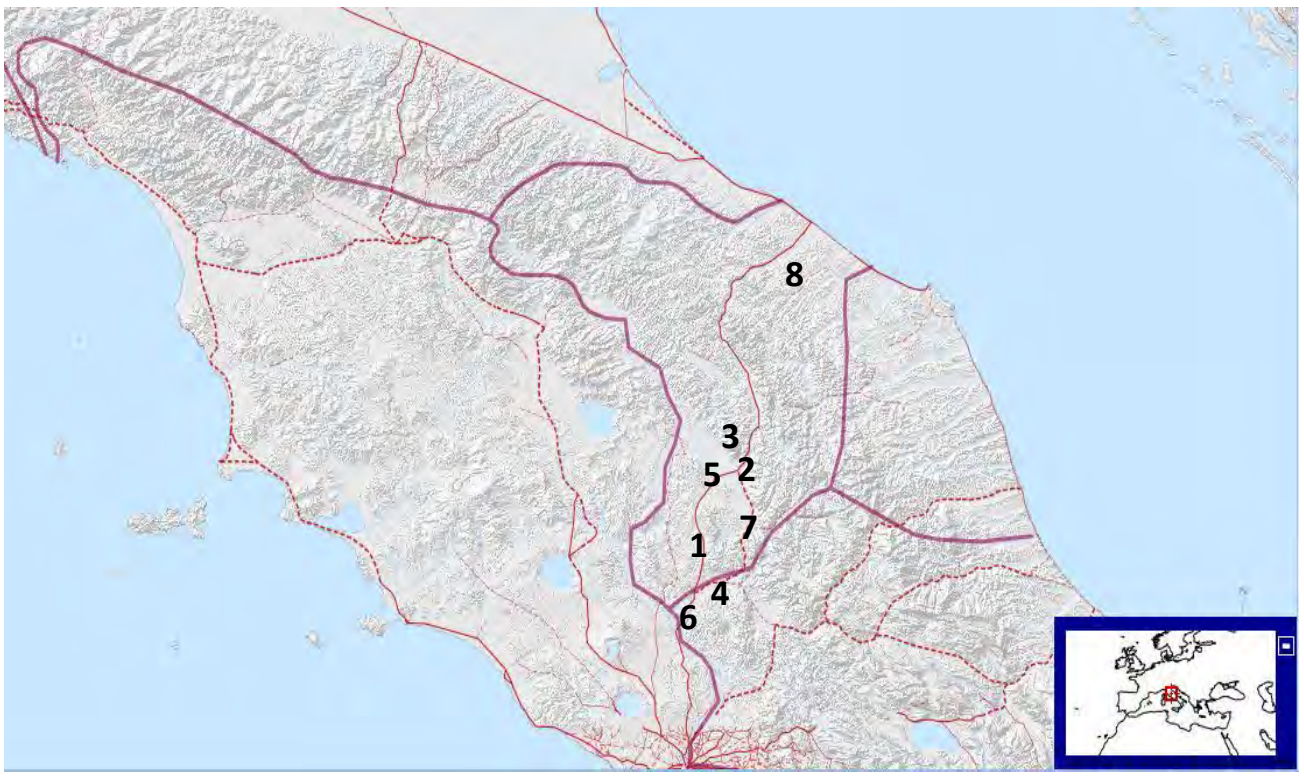
Italia Reg. V Picenum



1 – Ancona 2 – Asculum Picenum 3 – Falerio Picenus 4 – Interamnia Praetuttiorum 5 – Urbs Salvia

ITALIA REG. VI UMBRIA

Italia Reg. VI Umbria

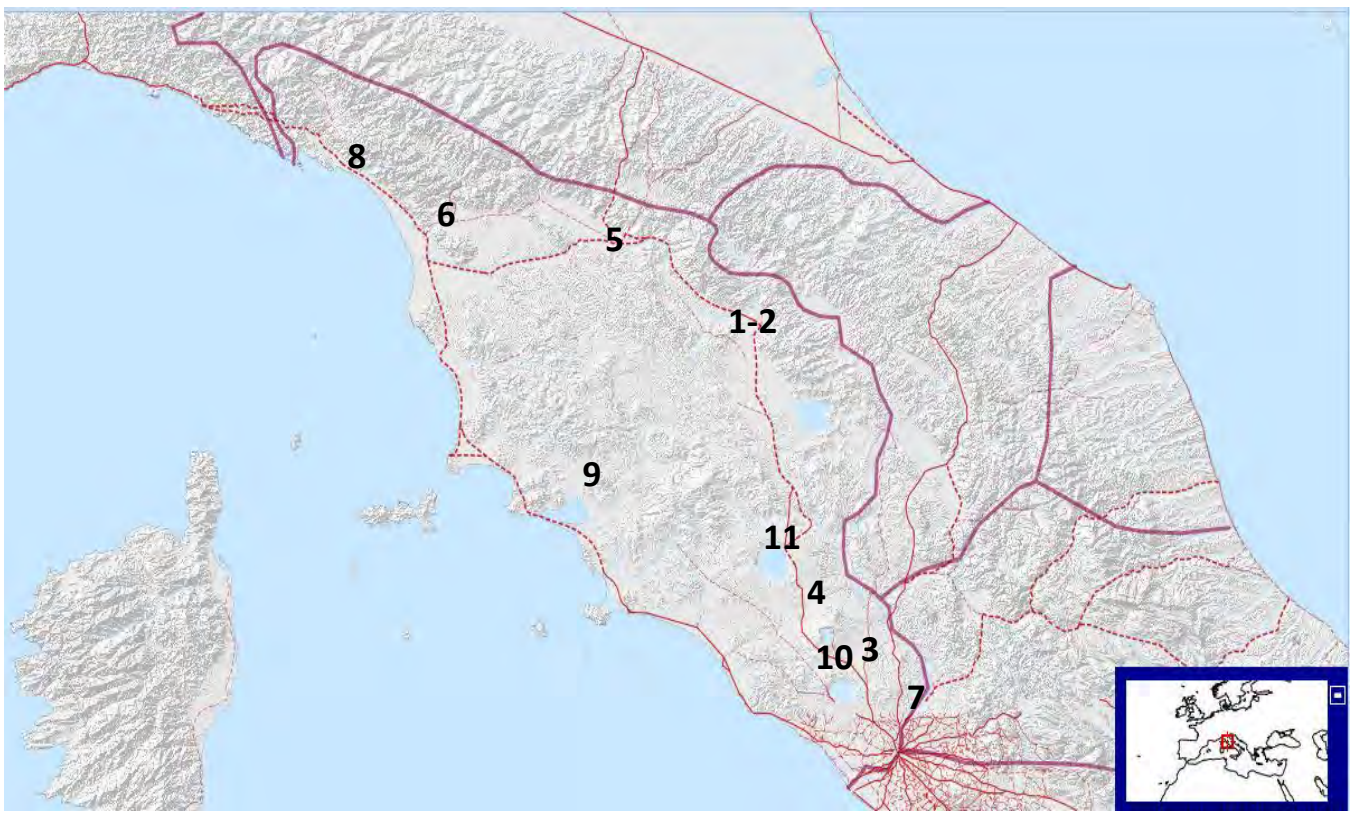


1 – Carsulae 2 – Fulginium 3 – Hispellum 4 – Interamna Nahars 5 – Mevania 6 – Ocriculum

7 – Spoletium 8 – Suasa Senonum

ITALIA REG. VII ETRURIA

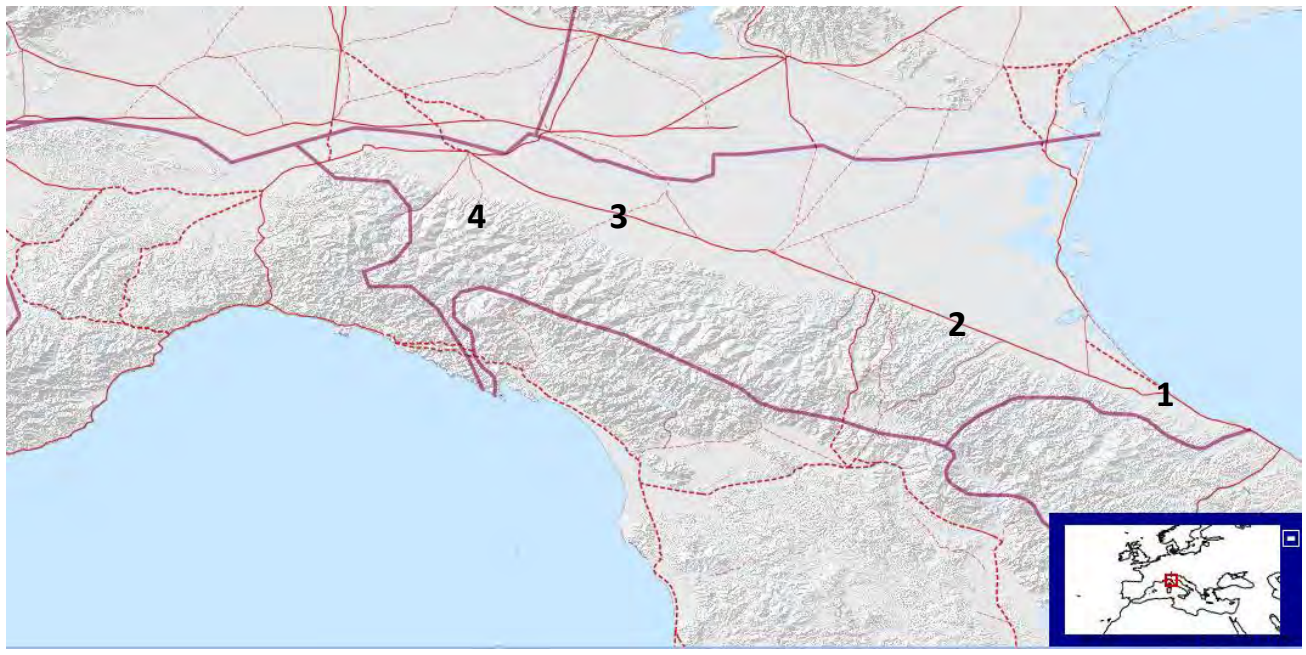
Italia Reg. VII Etruria



1-2 – Arretium 3 – Falerii Novi 4 – Ferentium 5 – Florentia 6 – Luca 7 – Lucus Feroniae 8 – Luna 9 – Rusellae 10– Sutrium 11 - Volsinii

ITALIA REG. VIII AEMILIA

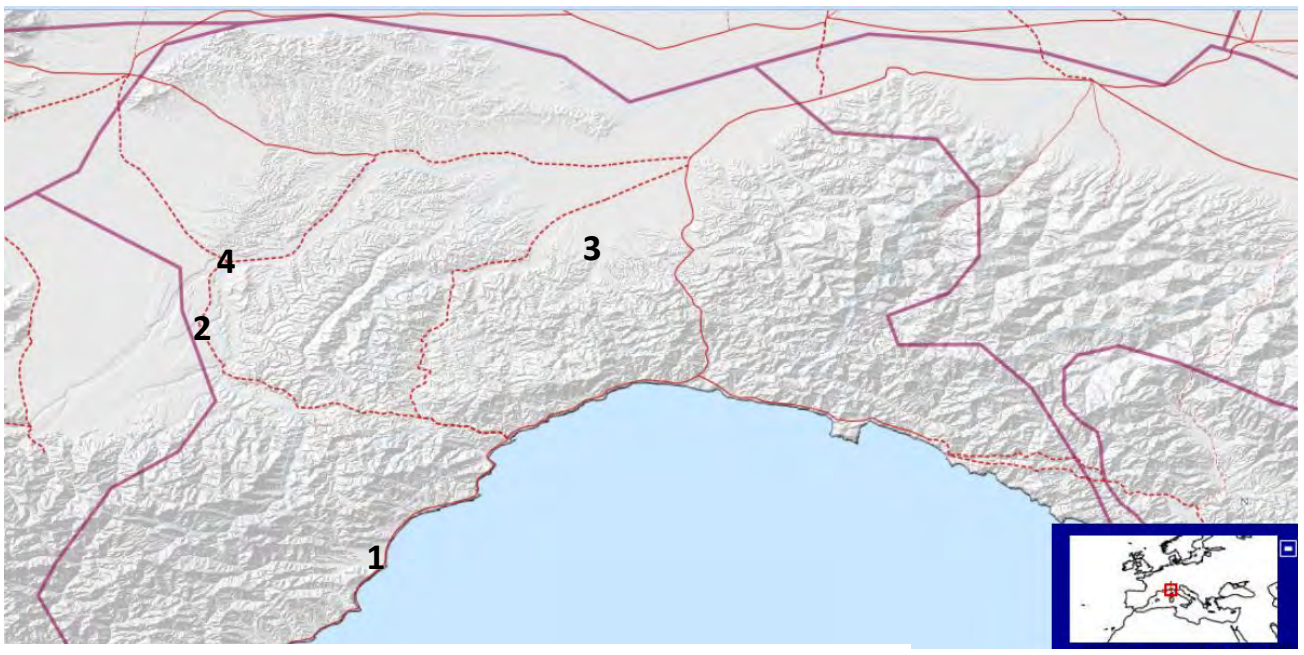
Italia Reg. VIII Aemilia



1 – Ariminum 2- Forum Cornelii 3 – Parma 4 – Veleia

ITALIA REG. IX LIGURIA

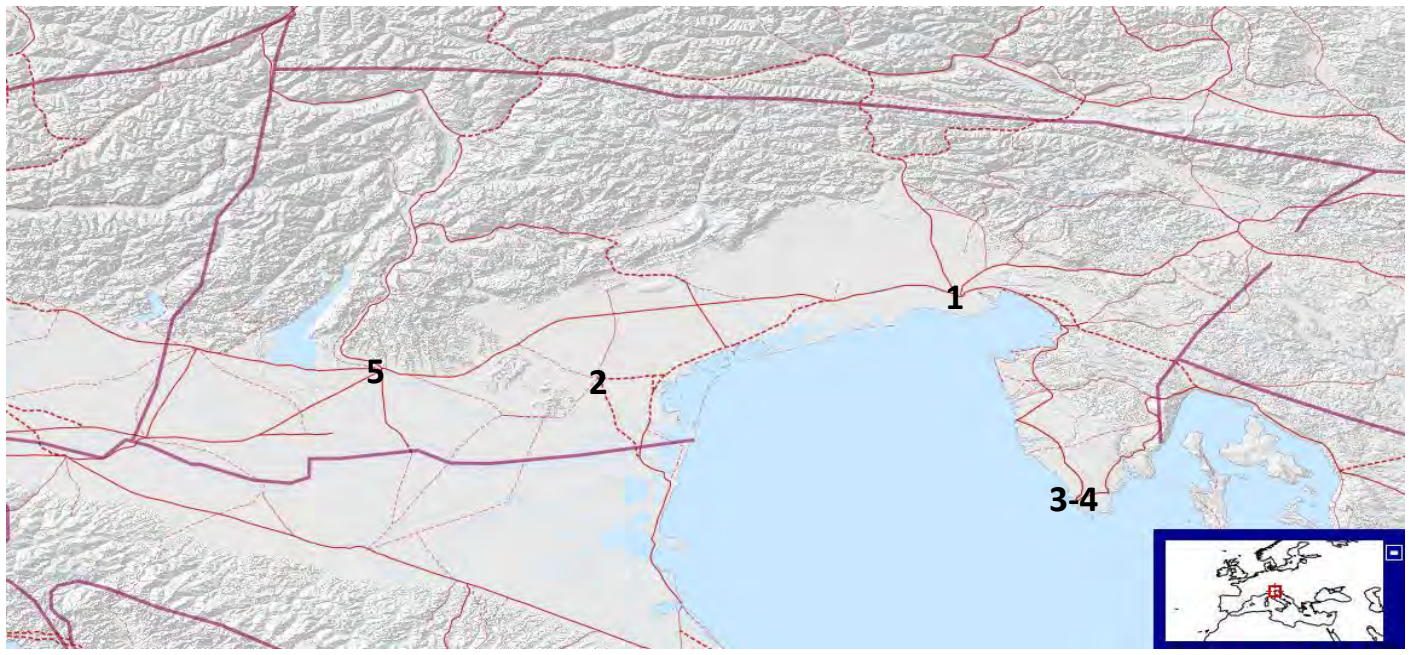
Italia Reg. IX Liguria



1 – Albingaunum 2 – Augusta Bagiennorum 3 – Libarna 4 – Pollentia

ITALIA REG. X VENETIA

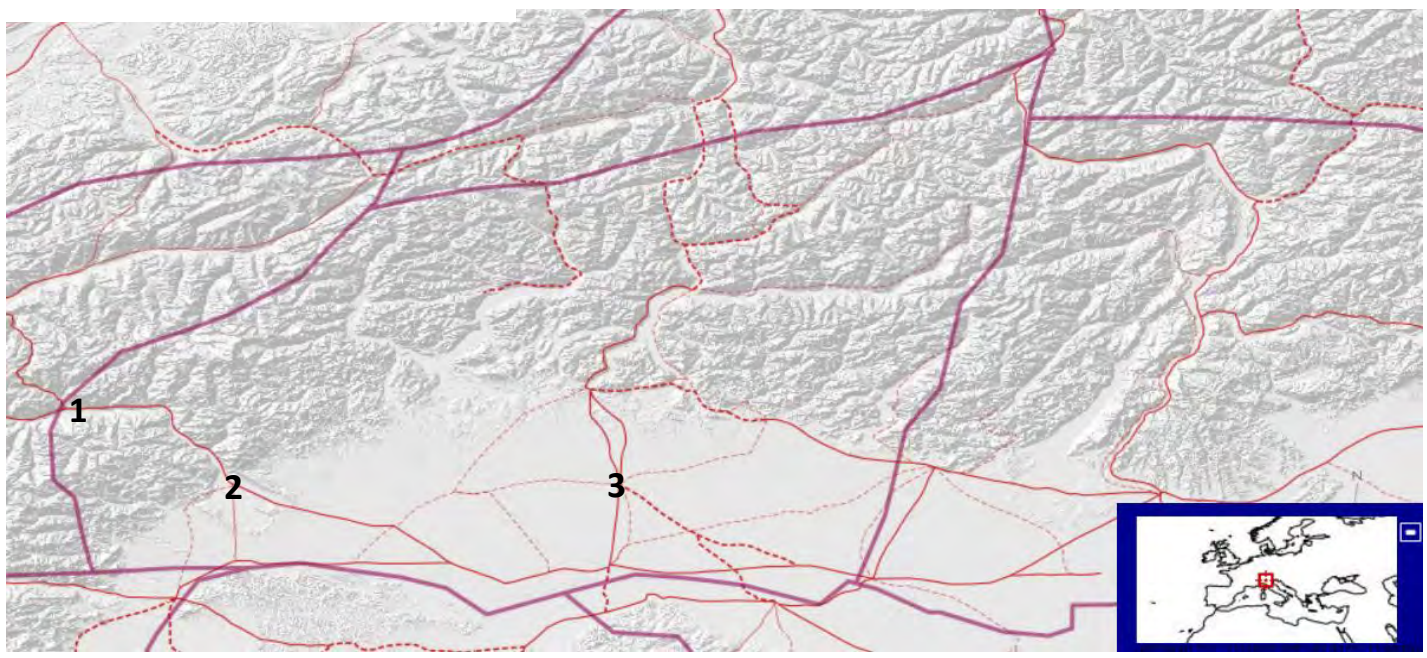
Italia Reg. X Venetia



1 – Aquileia 2- Patavium 3-4 – Pola 5 - Verona

ITALIA REG. XI GALLIA TRANSPADANA

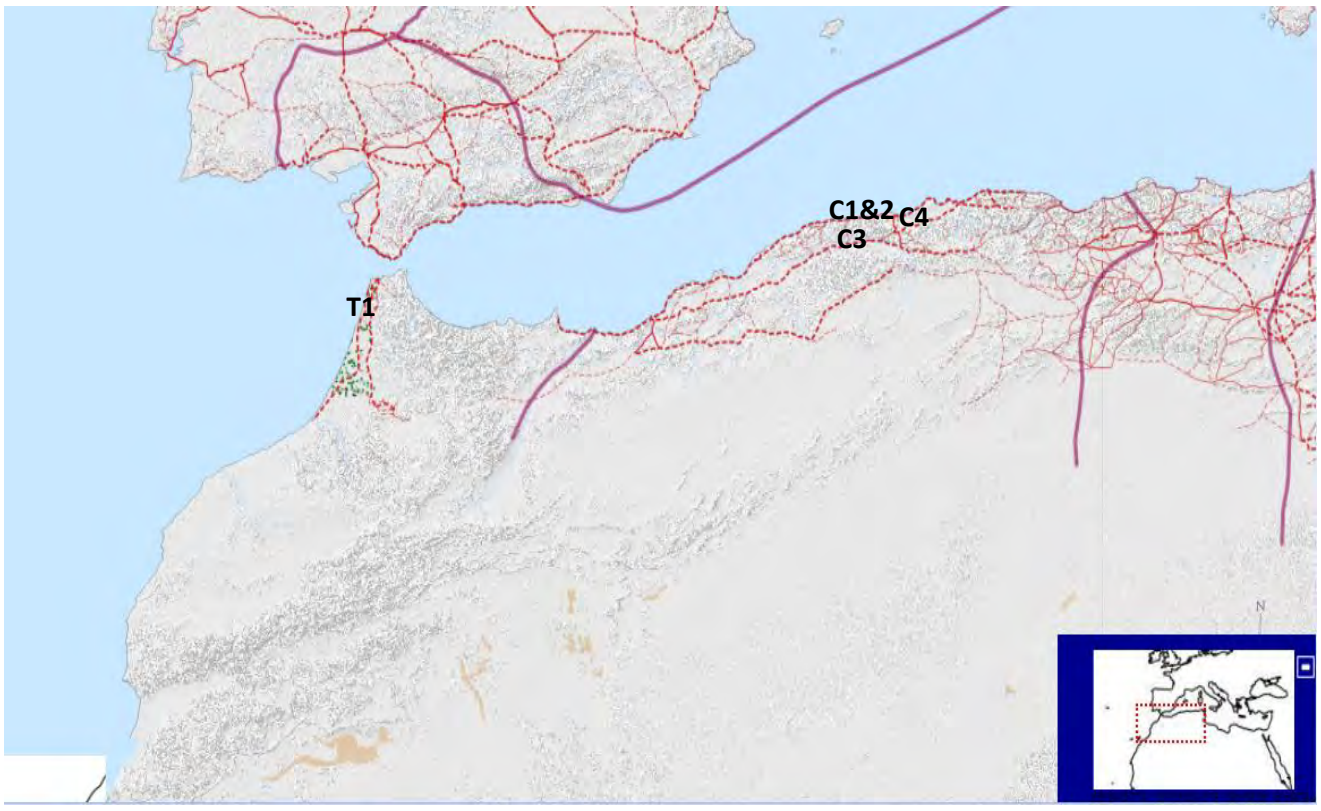
Italia Reg. XI Gallia Transpadana



1- Augusta Praetoria 2- Eporedia 3- Mediolanium (Milan)

MAURETANIA CAESARIENSIS & MAURETANIA TINGITANA

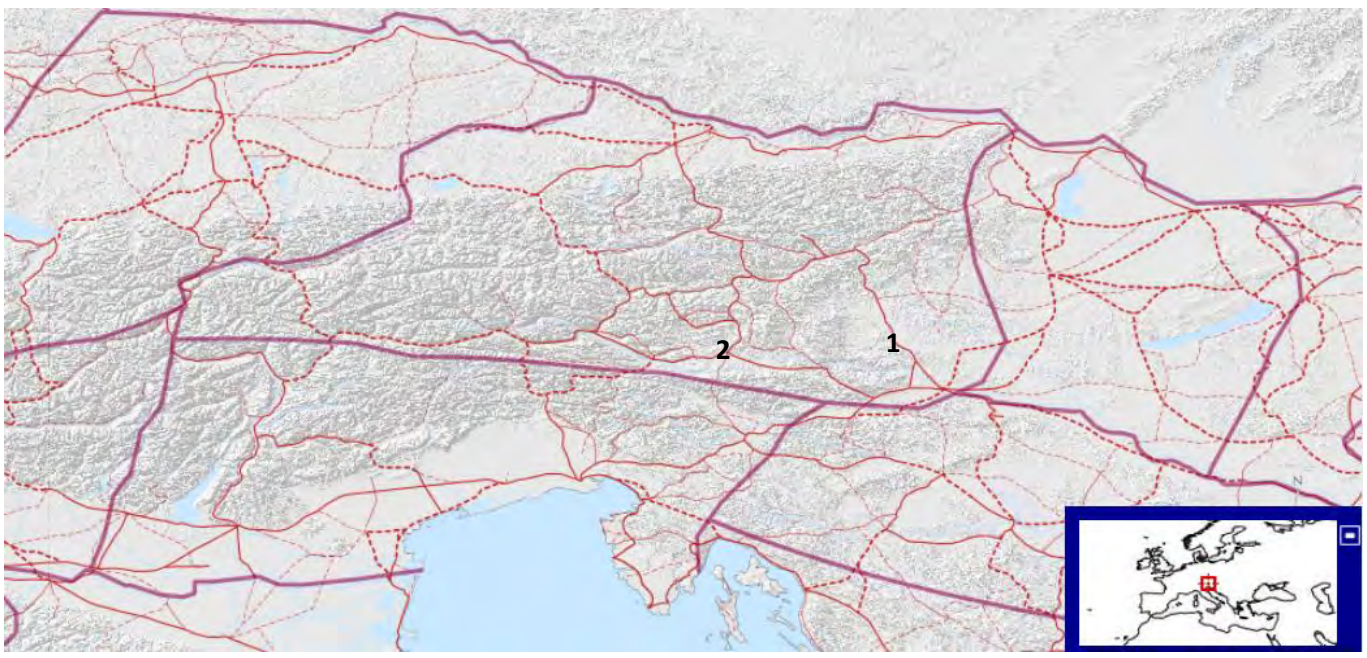
Mauretania Caesariensis & Mauretania Tingitana



C1&2 – Iol Caesariea C3 – Tigava Castra C4 – Tipasa T1 - Lixus

NORICUM

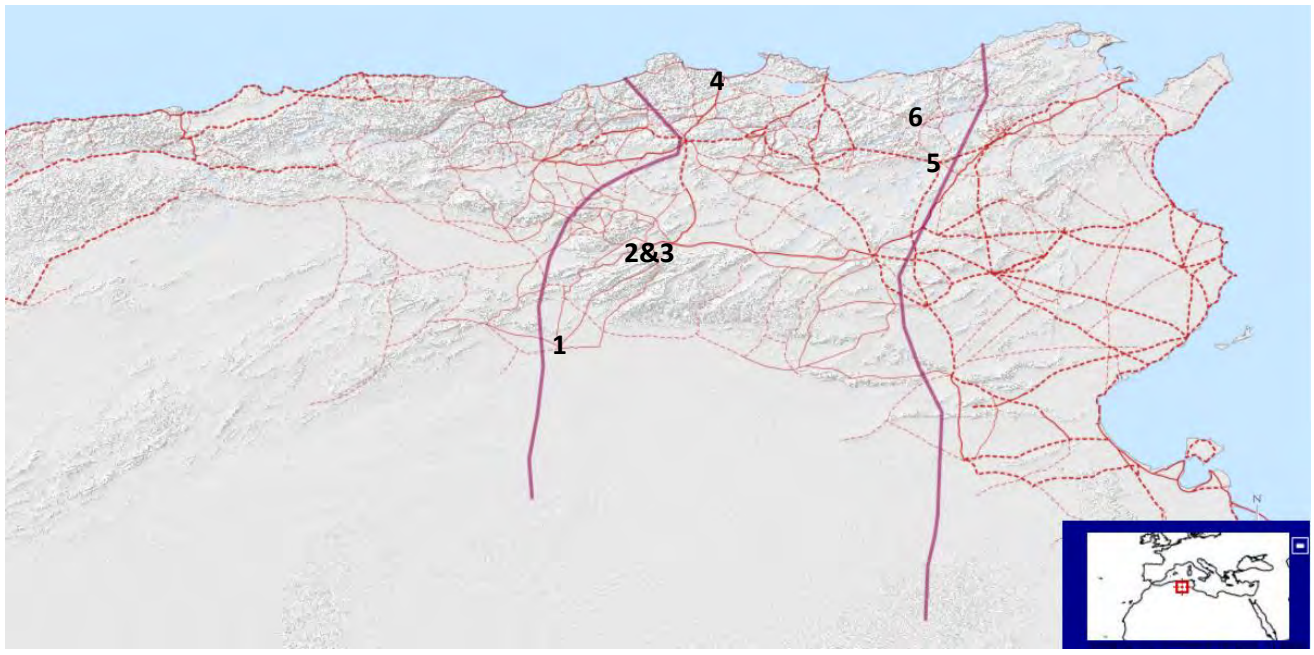
Noricum



1 – Flavia Solva 2 - Virunum

NUMIDIA

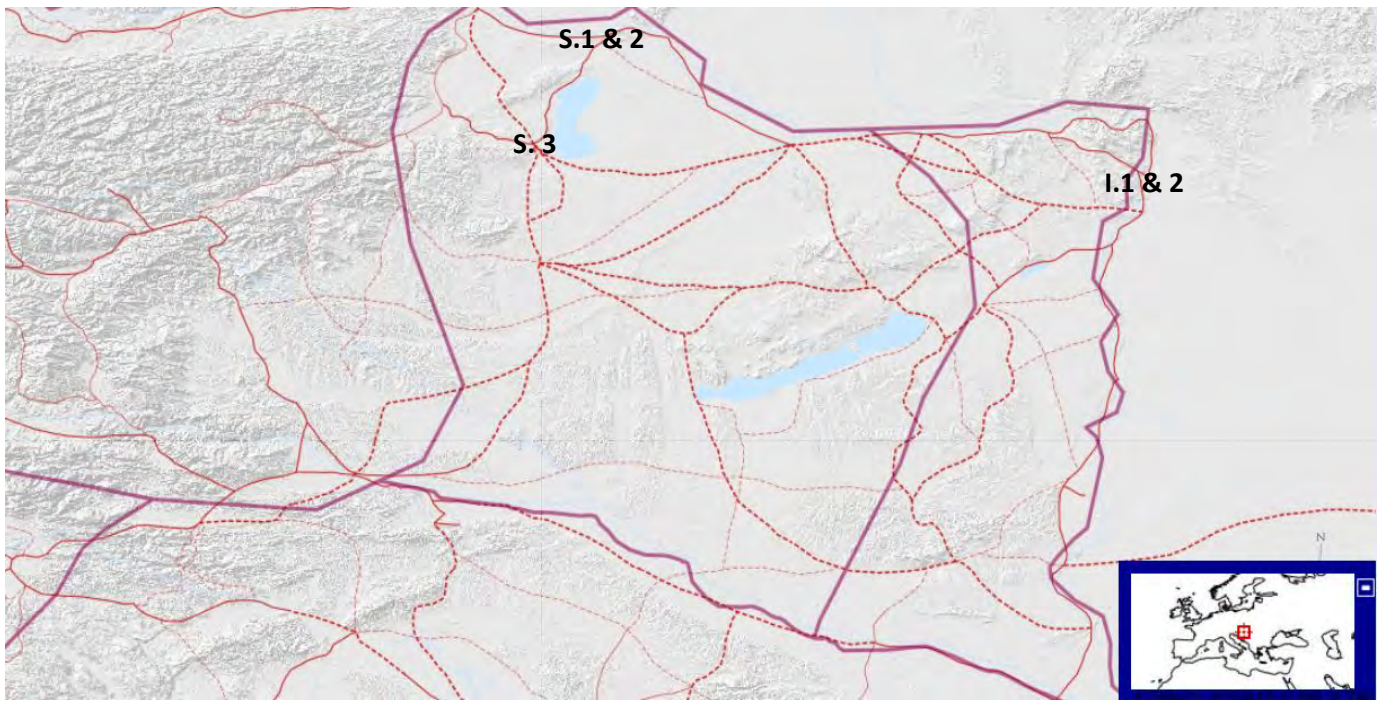
Numidia



1 – Gemellae 2&3- Lambaesis 4 – Rusicade 5 – Sicca Veneria 6 - Simmithu

PANNONIA INFERIOR & PANNONIA SUPERIOR

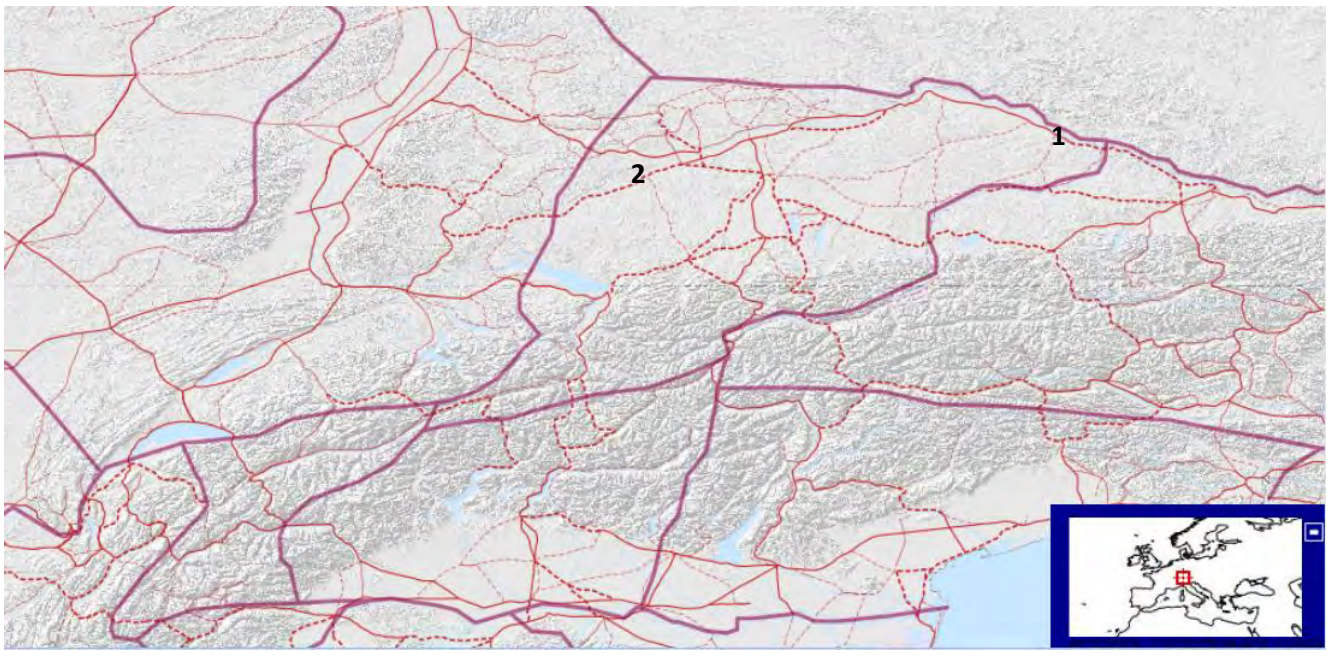
Pannonia Inferior & Pannonia Superior



I.1&2– Aquincum S.1&2 – Carnuntum S.3 - Scarbantia

RAETIA

Raetia



1 – Kunzing 2 - Unterkirchberg

SIC

Sicilia

1 – Catana 2 – Syracuse 3-4 – Thermae Himerae

APPENDIX III: 'OVERSIZED' AMPHITHEATRES

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Acholla	AP #1	Africa Proconsularis	AD 117-AD 138	90x86	6,078.98	2,459.86	3,619.12	Bomgardner, Golvin	11,633	7,750	3,883	33.38%	250/ha	31	Hanson 2016, Wilson 2011
Sabratha	AP #10	Africa Proconsularis	AD 100-AD 200	115x99	8,941.75	2,501.49	6,440.26	Bomgardner, Golvin	20,701	8,750	11,951	57.73%	250/ha	35	Hanson 2016, Wilson 2011
Segusium	ALP C #1	Alpes Cottiae	0-AD 25	60x52	2,450.44	1,244.07	1,206.37	Golvin	3,878	1,400	2,478	63.90%	200/ha	7	Hanson 2016
Cemenelum	ALP M #1	Alpes Maritimae	AD 14 (Probably)	67.2x56	2,955.61	1,257.26	1,698.35	Golvin	5,459	3,600	1,859	34.05%	200/ha	18	Hanson 2016
Octodurus	ALP POE #1	Alpes Poeninae	AD 41-AD 54	118x106	9,823.76	3,603.40	6,220.36	Golvin	19,994	4,400	15,594	77.99%	200/ha	22	Hanson 2016
Caerwent	BRIT #2	Britannia	Unknown	63x53	2,622.44	1,209.51	1,412.93	Golvin	4,542	2,700	1,842	40.55%	150/ha	18	Wilson 2011, Millett 1990
Carmarthen	BRIT #5	Britannia	AD 74-AD 125	91x67	4,788.57	1,178.09	3,610.48	Wilmott	11,605	2,700	8,905	76.73%	150/ha	18	Millett 1990
Dorchester	BRIT #10	Britannia	AD 70	88x77	5,321.85	2,221.51	3,100.34	Golvin	9,965	5,850	4,115	41.30%	150/ha	39	Hanson 2016
Silchester	BRIT #16	Britannia	AD 98-AD 117	80x70	4,398.22	1,400.83	2,997.39	Wilmott, Fulford	9,634	6,750	2,884	29.94%	150/ha	45	Hanson 2016
Aginnum	GA #1	Gallia Aquitania	27 BC-AD 68	115x92.5	8,354.67	1,195.76	7,158.91	Golvin	23,011	15,000	8,011	34.81%	200/ha	75	Wilson 2011, Hanson 2016
Augustoritum Lemovicum	GA #5	Gallia Aquitania	0-AD 100	137x116	12,481.54	2,563.53	9,918.01	Golvin	31,879	21,600	10,279	32.24%	200/ha	108	Wilson 2011, Hanson 2016
Burdigala	GA #7	Gallia Aquitania	AD 200-AD 225	132.3x110.6	11,483.55	2,560.13	8,923.42	Golvin	28,682	17,200	11,482	40.03%	200/ha	86	Wilson 2011, Hanson 2016
Limonum	GA #10	Gallia Aquitania	27BC-AD 68 (Probably)	155.8x130.5	15,968.63	2,668.86	13,299.77	Golvin	42,749	16,000	26,749	62.57%	200/ha	80	Wilson 2011, Hanson 2016
Segodunum	GA #14	Gallia Aquitania	25 BC- 0	110x97	8,380.19	961.52	7,418.67	Golvin	23,846	7,600	16,246	68.13%	200/ha	38	Hanson 2016, Wilson 2011
Vesunna	GA #16	Gallia Aquitania	0-AD 100	129x105.4	10,678.74	2,113.50	8,565.24	Golvin	27,531	9,600	17,931	65.13%	200/ha	48	Wilson 2011, Hanson 2016
Champlieu	GB #2	Gallia Belgica	AD 117-AD 138	-	1,420.87	490.87	930	Golvin	2,989	750	2,239	74.91%	200/ha	3.75 (?)	PECS 1976
Divodurum Mediomatricorum	GB #3	Gallia Belgica	AD 68-AD 96	148x124.3	14,448.49	2,121.87	12,326.62	Golvin	39,621	10,400	29,221	73.75%	200/ha	52	Hanson 2016
Grannum	GB #4	Gallia Belgica	0-AD 100	-	6,466.59	1,366.59	5,100.00	Golvin	16,393	4,200	12,193	74.38%	200/ha	21	Hanson 2016
Iuliobonna (Phase 2)	GB #6	Gallia Belgica	AD 100-AD 200	-	6,196.46	1,696.46	4500	Golvin	14,464	7,000	7,464	51.60%	200/ha	35+	Hanson 2016
Alleants	GL #2	Gallia Lugdunensis	AD 117-AD 138	-	2,572.55	572.55	2000	Golvin and Sear	6,429	3,600	2,829	44.00%	200/ha	18	Rorison 2001
Augustomagus Sylvanectum	GL #7	Gallia Lugdunensis	27 BC-AD 14 (Probably)	90x83	5,866.92	1,124.49	4,742.43	Golvin	15,244	9,600	5,644	37.02%	200/ha	48	Hanson 2016
Caesarodunum Turonum	GL #11	Gallia Lugdunensis	AD 117-AD 138	145x127	14,463.10	2,670.35	11,792.75	Golvin	37,905	13,400	24,505	64.65%	200/ha	67	Hanson 2016
Lutetia Parisiorum	GL #21	Gallia Lugdunensis	AD 50-AD 117	-	9,574.36	2,414.36	7,160.00	Golvin	23,014	9,000	14,014	60.89%	200/ha	45	Hanson 2016
Noiodounon Diablintum	GL #25	Gallia Lugdunensis	AD 117-AD 138	-	3,756.63	1,256.63	2,500.00	Golvin	8,036	5,600	2,436	30.31%	200/ha	28	Hanson 2016
Arles	GN #1	Gallia Narbonensis	AD 68-AD 96	136.2x107.6	11,510.10	2,166.23	9,343.87	Golvin	30,034	12,400	17,634	58.71%	200/ha	62	Hanson 2016
Baeterrae	GN #2	Gallia Narbonensis	AD 50-AD 150	103.6x74	6,021.17	2,580.50	3,440.67	Golvin	11,059	3,000	8,059	72.87%	200/ha	15	Hanson 2016

Forum Iulii	GN #3	Gallia Narbonensis	27 BC-AD 68	113.7x85.7	7,652.99	2,110.90	5,542.09	Golvin	17,814	9,800	8,014	44.99%	200/ha	49	Hanson 2016
Augusta Raurica (Augst-Sichelengraben)	GER SUP #3	Germania Superior	AD 170 - AD 200	102x87	6,969.62	1,326.55	5,643.07	Hufschmid, Golvin	18,138	8,600	9,538	52.59%	200/ha	43	Hanson 2016
Aventicum	GER SUP #4	Germania Superior	AD 75-AD 125	99x87	6,764.63	1,562.15	5,202.48	Golvin	16,722	7,200	9,522	56.94%	200/ha	36	Hanson 2016
Octodurus	GER SUP #8	Germania Superior	AD 41-AD 54	118x106	9,823.76	3,603.40	6,220.36	Golvin	19,994	4,400	15,594	77.99%	200/ha	22	Hanson 2016
Astigi	HISP B #1	Hispania Baetica	AD 25-AD 75	130x107	10,924.88	2,643.88	8,281.00	Jiménez Hernández 2015	26,618	19,500	7,118	26.74%	250/ha	78	Jiménez Hernández 2015
Carmo	HISP B #2	Hispania Baetica	50 BC-30 BC	131.2x111.4	11,479.12	1,801.07	9,678.05	Golvin	31,108	10,600	20,508	65.93%	250/ha	42	Hanson 2016
Corduba	HISP B #3	Hispania Baetica	AD 50-AD 100	178x154	21,529.33	5,504.07	16,025.26	Jiménez Hernández 2015	51,510	24,750	26,760	51.95%	250/ha	99	Hanson 2016
Italica	HISP B #6	Hispania Baetica	AD 125-AD 175	156.5x134	16,470.58	2,751.64	13,718.94	Golvin	44,097	12,750	31,347	71.09%	250/ha	51	Carreras 1996/Hidalgo 2003
Conimbriga	HISP L #4	Hispania Lusitania	0-AD 100	94x80	5,906.19	1,696.46	4,209.73	Golvin	13,531	5,750	7,781	57.51%	250/ha	23	Hanson 2016
Ebora	HISP L #5	Hispania Lusitania	-	80x65	4,084.07	1,060.28	3,023.79	Correia	9,719	3,000	6,719	69.13%	250/ha	12	Hanson 2016
Barcino (*)	HISP T #1	Hispania Tarraconensis	-	117x98	9,005.37	1,840.77	7,164.60	Sales Carbonell	23,029	3,000	20,029	86.97%	250/ha	12	Hanson 2016
Leon (L)	HISP T #6	Hispania Tarraconensis	AD 74 (Possibly slighlty later)	90x70	4,948.00	1,184.95	3,763.05	Vidal Encinas 2005	12,096	4,750	7,346	60.73%	250/ha	19	Vidal Encinas 2005
Segobriga	HISP T #7	Hispania Tarraconensis	AD 30-AD 60	75x68.5	4,034.98	1,081.49	2,953.49	Golvin	9,493	2,750	6,743	71.03%	250/ha	11	Hanson 2016
Tarraco	HISP T #9	Hispania Tarraconensis	0-AD 25	148.1x118.9	13,830.14	3,659.07	10,171.07	Golvin	32,693	17,500	15,193	46.47%	250/ha	70	de Ligt 2012, Hanson 2016
Pompeii	ITAL CAMP #10	Italia Reg. I Campania	BC 80 – BC 70	134.8x102.5	10,851.84	1,788.35	9,063.49	Welch	29,133	12,000	17,133	58.81%	200/ha	60	de Ligt 2012, Hanson 2016
Puetoli (Phase 2)	ITAL CAMP #11	Italia Reg. I Campania	AD 68-AD 96	149x116	13,574.82	2,467.40	11,107.42	Golvin	35,702	24,000	11,702	32.78%	200/ha	120	de Ligt 2012, Hanson 2016
Telesia	ITAL CAMP #15	Italia Reg. I Campania	1st Century BC	99x77	5,987.09	2,456.72	3,530.37	Welch, Golvin	11,348	4,000	7,348	64.75%	200/ha	20	Hanson 2016
Aquinum	ITAL LAT #2	Italia Reg. I Latium	0-AD 100	115x96	8,670.79	1,555.08	7,115.71	Golvin	22,872	14,200	8,672	37.92%	200/ha	71	Hanson 2016
Casinum	ITAL LAT #3	Italia Reg. I Latium	0-AD 100	85x69	4,606.36	1,470.26	3,136.10	Golvin	10,080	2,000	8,080	80.16%	200/ha	10	Hanson 2016
Tusculum	ITAL LAT #10	Italia Reg. I Latium	AD 100-AD 200	73x54	3,096.03	1,154.53	1,941.50	Golvin	6,241	3,800	2,441	39.11%	200/ha	19	Hanson 2016
Venafrum	ITAL LAT #11	Italia Reg. I Latium	27 BC-AD 14	110x85	7,343.47	1,649.33	5,694.14	Tosi, Golvin	18,303	5,400	12,903	70.50%	200/ha	27	Hanson 2016
Herdoniae	ITAL APUL #1	Italia Reg. II Apulia	c. AD 50	75.5x59.4	3,522.27	994.81	2,527.46	Golvin	8,124	3,800	4,324	53.22%	200/ha	19	Hanson 2016
Luceria	ITAL APUL #2	Italia Reg. II Apulia	AD 100-AD 125	126.8x94.5	9,411.11	2,551.47	6,859.64	Golvin	22,049	15,000	7,049	31.97%	200/ha	75	Hanson 2016
Lupiae (Phase 1)	ITAL APUL #3	Italia Reg. II Apulia	27 BC-AD 14 (Probably)	94x75	5,537.05	1,426.29	4,110.76	Golvin	13,213	4,000	9,213	69.73%	200/ha	20	Hanson 2016
Lupiae (Phase 2)	ITAL APUL #4	Italia Reg. II Apulia	AD 117-AD 180	101.9x83	6,642.66	1,426.29	5,216.37	Golvin	16,767	4,000	12,767	76.14%	200/ha	20	Hanson 2016

Venusia	ITAL APUL #5	Italia Reg. II Apulia	AD 100-AD 200	98x77	5,926.61	1,685.46	4,241.15	Golvin	13,632	8,800	4,832	35.45%	200/ha	44	Hanson 2016
Grumentum	ITAL LUCA #1	Italia Reg. III Lucania	Possibly 1st Century BC	90x70	4,948.00	1,884.95	3,063.05	Golvin	9,846	6,600	3,246	32.96%	200/ha	33	Hanson 2016
Alba Fucentia	ITAL SAM-SAB #1	Italia Reg. IV Samnium-Sabina	AD 14-AD 54	103x76	6,148.09	1,859.82	4,288.27	Golvin	13,784	6,600	7,184	52.12%	200/ha	33	Hanson 2016
Alifae	ITAL SAM-SAB #2	Italia Reg. IV Samnium-Sabina	25 BC - AD 75	109x82	7,019.88	2,544.69	4,475.19	Tosi	14,385	4,400	9,985	69.41%	200/ha	22	Hanson 2016
Forum Novum	ITAL SAM-SAB #4	Italia Reg. IV Samnium-Sabina	0-AD 100	-	-	883.57	-	Gaffney and Patterson	2,000	800	1,200	60.00%	200/ha	4	De Ligt 2012, Gaffney 2004
Trebula Mutuesca	ITAL SAM-SAB #6	Italia Reg. IV Samnium-Sabina	AD 100 - AD 125	94x66	4,872.61	1,676.82	3,195.79	Tosi, Festuccia	10,272	500	9,772	95.13%	200/ha	2.5	Hanson 2016
Ancona	ITAL PICE #1	Italia Reg. V Picenum	0-AD 100	111x97	8,456.38	2,788.94	5,667.44	Golvin	18,217	8,000	10,217	56.08%	200/ha	40	Hanson 2016
Urbs Salvia	ITAL PICE #5	Italia Reg. V Picenum	AD 75-AD 76	96.6x74.6	5,659.86	1,837.17	3,822.69	Golvin	12,287	7,400	4,887	39.77%	200/ha	37	Hanson 2016
Carsulae	ITAL UMB #1	Italia Reg. VI Umbria	0-AD 100	86.5x62	4,212.09	1,833.87	2,378.22	Golvin	7,644	3,000	4,644	60.75%	200/ha	15	Hanson 2016
Hispellum	ITAL UMB #3	Italia Reg. VI Umbria	1st Century BC	108x82	6,955.48	1,651.52	5,303.96	Tosi et al, Golvin	17,048	2,600	14,448	84.75%	200/ha	13	Hanson 2016
Interamna Nahars	ITAL UMB #4	Italia Reg. VI Umbria	0-AD 25	96.5x73	5,532.73	1,176.63	4,356.10	Golvin	14,002	9,600	4,402	31.44%	200/ha	48	Hanson 2016
Mevania	ITAL UMB #5	Italia Reg. VI Umbria	1st Century BC	80x53	3,330.08	829.38	2,500.70	Tosi et al, Golvin	8,038	2,800	5,238	65.17%	200/ha	14	Hanson 2016
Ocriculum	ITAL UMB #6	Italia Reg. VI Umbria	27 BC-AD 68	120x98	9,236.28	2,111.15	7,125.13	Golvin	22,902	5,000	17,902	78.17%	200/ha	25	Hanson 2016
Suasa Senonum	ITAL UMB #8	Italia Reg. VI Umbria	AD 75 - AD 100	98.70x77.20	5,984.45	1,724.73	4,259.72	Tosi et al	13,692	4,200	9,492	69.33%	200/ha	21	Hanson 2016
Arretium (Phase 2)	ITAL ETR #2	Italia Reg. VII Etruria	AD 75-AD 125	121.4x92	8,771.95	2,411.27	6,360.68	Golvin	20,445	11,000	9,445	46.20%	200/ha	55	Hanson 2016
Falerii Novi	ITAL ETR #3	Italia Reg. VII Etruria	27 BC-AD 14 (Probably)	88x66.4	4,589.23	1,394.56	3,194.67	Golvin	10,269	6,200	4,069	39.62%	200/ha	31	Hanson 2016
Florentia	ITAL ETR #5	Italia Reg. VII Etruria	27 BC-AD 68	113x89	7,898.74	2,010.61	5,888.13	Golvin	18,926	4,400	14,526	76.75%	200/ha	22	Hanson 2016
Luca	ITAL ETR #6	Italia Reg. VII Etruria	AD 50-AD 150	124x96	9,349.37	3,330.08	6,019.29	Golvin	19,348	9,600	9,748	50.38%	200/ha	48	Hanson 2016
Sutrium	ITAL ETR #10	Italia Reg. VII Etruria	1st Century BC	85x75	5,006.91	1,570.79	3,436.12	Welch	11,045	2,000	9,045	81.89%	200/ha	10	Hanson 2016
Volsinii	ITAL ETR #11	Italia Reg. VII Etruria	AD 68-AD 96 (Probably)	100.7x84.2	6,659.34	1,945.54	4,713.80	Golvin	15,152	7,000	8,152	53.80%	200/ha	35	Hanson 2016

Ariminium	ITAL AEM #1	Italia Reg. VIII Aemilia	27 BC-AD 68	117.7x88.1	8,144.08	2,557.25	5,586.83	Golvin	17,958	8,000	9,958	55.45%	200/ha	40	Hanson 2016
Forum Cornelii	ITAL AEM #2	Italia Reg. VIII Aemilia	AD 100 - AD 125	108x81	6,870.66	2,104.86	4,765.80	Golvin	15,319	8,600	6,719	43.86%	200/ha	43	Hanson 2016
Parma	ITAL AEM #3	Italia Reg. VIII Aemilia	27 BC-AD 68	135x108	11,451.10	2,431.59	9,019.51	Golvin	28,991	4,200	24,791	85.51%	200/ha	21	Hanson 2016
Veleia	ITAL AEM #4	Italia Reg. VIII Aemilia	30 BC-20AD	54.9x44.1	1,901.51	741.02	1,160.49	Golvin	3,730	2,000	1,730	46.38%	200/ha	10	Hanson 2016
Albingaunum	ITAL LIG #1	Italia Reg. IX Liguria	AD 100-AD 200	70x50	2,748.89	1,178.09	1,570.80	Golvin	5,049	1,600	3,449	68.31%	200/ha	8	Hanson 2016
Augusta Bagiennorum	ITAL LIG #2	Italia Reg. IX Liguria	0-AD 100	117x92	8,454.02	2,945.24	5,508.78	Tosi et al, Golvin	17,707	3,200	14,507	81.93%	200/ha	16	Hanson 2016
Libarna	ITAL LIG #3	Italia Reg. IX Liguria	AD 75-AD 100	88x58.7	4,057.05	1,902.39	2,154.66	Golvin	6,926	4,000	2,926	42.24%	200/ha	20	Hanson 2016
Pollentia	ITAL LIG #4	Italia Reg. IX Liguria	AD 75 - AD 125	132x98	10,159.91	3,091.31	7,068.60	Preacco 2006	22,721	5,000	17,721	77.99%	200/ha	25	Hanson 2016
Aquileia	ITAL VEN #1	Italia Reg. X Venetia	AD 41-AD 54 (Possibly)	142x118	13,160.13	2,601.23	10,558.90	Golvin	33,939	16,000	17,939	52.86%	200/ha	80	Hanson 2016
Pola (Phase 1)	ITAL VEN #3	Italia Reg. X Venetia	27 BC-AD 14	123x96.5	9,322.28	2,223.79	7,098.49	Golvin	22,817	4,800	18,017	78.96%	200/ha	24	Hanson 2016
Pola (Phase 2)	ITAL VEN #4	Italia Reg. X Venetia	AD 41-AD 54	132.5x105.1	10,937.25	2,223.79	8,713.46	Golvin	28,008	4,800	23,208	82.86%	200/ha	24	Hanson 2016
Verona	ITAL VEN #5	Italia Reg. X Venetia	0- AD 100	152.4x123.2	14,746.38	2,639.78	12,106.60	Golvin	38,914	10,400	28,514	73.27%	200/ha	52	Hanson 2016
Augusta Praetoria	ITAL GAL TRANS #1	Italia Reg. XI Gallia Transpadana	0- AD 100 (Probably)	86x73	4,930.72	1,022.58	3,908.14	Golvin	12,562	8,200	4,362	34.72%	200/ha	41	Hanson 2016
Mediolanum	ITAL GAL TRANS #3	Italia Reg. XI Gallia Transpadana	0-AD 25	155x125	15,217.08	2,557.25	12,659.83	Golvin	40,692	21,000	19,692	48.39%	200/ha	105	Hanson 2016
Lambaesis (Phase 2) (L)	NUM #3	Numidia	AD 169-AD 190	104.6x94	7,722.34	2,937.38	4,784.96	Golvin	15,380	10,000	5,380	34.98%	200/ha	50	Hanson 2016
Sicca Veneria	NUM #5	Numidia	0-AD 50	100x80	6,283.18	2,748.89	3,534.29	Bomgardner, Golvin	11,360	6,200	5,160	45.42%	200/ha	31	Wilson 2011
Aquincum Mil. (L)	PAN INF #2	Pannonia Inferior	AD 145-AD 161	131x107	11,008.92	4,589.23	6,419.69	Golvin	20,635	10,000	10,635	51.54%	200/ha	50	Hanson 2016
Carnuntum Civ.	PAN SUP #1	Pannonia Superior	AD 100-AD 200	122x106	10,156.76	2,777.16	7,379.60	Golvin	23,720	11,400	12,320	51.94%	200/ha	57	Hanson 2016
Caralis	SARD #1	Sardinia	AD 100-AD 200	92.8x79.2	5,772.48	1,220.32	4,552.16	Golvin	14,632	6,000	8,632	58.99%	N/A	N/A	Wilson 2011
Catana	SICI #1	Sicilia	AD 100-AD 200	143.8x121	13,665.77	3,713.46	9,952.31	Golvin	31,990	19,650	12,340	38.57%	150/ha	131	Hanson 2016

APPENDIX IV: 'UNDERSIZED' AMPHITHEATRES

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Carthage (Phase 1)	AP #5	Africa Proconsularis	27 BC-AD 14	120x93	8,765.04	1,864.92	6,900.12	Bomgardner, Golvin	22,179	85,750	-63,571	-286.63%	250/ha	343	Hanson 2016, Wilson 2011
Carthage (Phase 2)	AP #6	Africa Proconsularis	AD 100-AD 200	156x128	15,682.83	1,864.92	13,817.91	Bomgardner, Golvin	44,415	85,750	-41,335	-93.07%	250/ha	343	Hanson 2016, Wilson 2011
Lepcis Magna	AP #7	Africa Proconsularis	AD 56	100x90	7,068.58	2,104.08	4,964.50	Bomgardner, Golvin	15,957	90,000	-74,043	-464.00%	250/ha	466	Hanson 2016, Wilson 2011
Leptiminus	AP #8	Africa Proconsularis	AD 100-AD 200	85.84x65.12	4,390.29	1,568.94	2,821.35	Bomgardner, Golvin	9,069	13,000	-3,931	-43.35%	250/ha	52	Hanson 2016, Wilson 2011
Mactaris	AP #9	Africa Proconsularis	AD 175-AD 215	63.2x49.6	2,462.00	747.95	1,714.05	Bomgardner, Golvin	5,509	30,000	-24,491	-444.52%	250/ha	120	Wilson 2011
Sufetula	AP #12	Africa Proconsularis	AD 160 (Onwards)	72x60	3,392.92	1,365.80	2,027.12	Bomgardner, Golvin	6,516	12,000	-5,484	-84.17%	250/ha	48	Hanson 2016, Wilson 2011
Thapsus	AP #14	Africa Proconsularis	AD 100-AD 200	80x58	3,644.24	2,262.73	1,381.51	Bomgardner, Golvin	4,441	11,000	-6,559	-147.72%	250/ha	44	Hanson 2016, Wilson 2011
Theveste (Phase 1)	AP #15	Africa Proconsularis	AD 74-AD 79	83x70	4,563.16	1,638.02	2,925.14	Bomgardner, Golvin	9,402	16,750	-7,348	-78.15%	250/ha	67	Hanson 2016, Wilson 2011
Thignica	AP #18	Africa Proconsularis	AD 150-AD 200	65.2x52	2,662.81	863.05	1,799.76	Bomgardner, Golvin	5,785	20,000	-14,215	-245.73%	250/ha	80	Hanson 2016, Wilson 2011
Thysdrus (Minus Phase 1)	AP #22	Africa Proconsularis	AD 80	79x70	4,343.25	1,539.38	2,803.87	Bomgardner, Golvin	9,012	43,750	-34,738	-385.44%	250/ha	175	Hanson 2016, Wilson 2011
Thysdrus (Minus Phase 2)	AP #23	Africa Proconsularis	AD 100-AD 200	92x72	5,202.47	1,884.95	3,317.52	Bomgardner, Golvin	10,663	43,750	-33,087	-310.28%	250/ha	175	Hanson 2016, Wilson 2011
Ulissipira	AP #24	Africa Proconsularis	AD 100-AD 200	69x53	2,872.20	1,206.37	1,665.83	Bomgardner, Golvin	5,354	15,000	-9,646	-180.14%	250/ha	60 (?)	Hanson 2016, Wilson 2011
Uthina	AP #25	Africa Proconsularis	AD 100-AD 125	96x81	6,107.25	1,546.25	4,561.00	Bomgardner, Golvin	14,660	30,000	-15,340	-104.63%	250/ha	120	Hanson 2016, Wilson 2011
Utica	AP #26	Africa Proconsularis	0-AD 100	118x98	9,082.34	3,769.91	5,312.43	Bomgardner, Golvin	17,076	22,000	-4,924	-28.84%	250/ha	88	Hanson 2016, Wilson 2011
Chichester	BRIT #8	Britannia	AD 70-AD 90	70x58	3,188.71	2,021.64	1,167.07	Wilmott	3,751	6,300	-2,549	-67.94%	150/ha	42	Hanson 2016
Londinium (Masonary Built)	BRIT #13	Britannia	AD 125	?	7,133.00	2,190.00	4,943.00	Bateman	15,888	30,000	-14,112	-88.82%	150/ha	200	Wilson 2011, Millett 1990
Aleria *	COR #1	Corsica	AD 200-AD 300	39.6x34	1,057.46	557.94	499.52	Golvin	1,606	6,000	-4,394	-273.69%	?	?	Wilson 2011
Aquae Neri	GA #2	Gallia Aquitania	0-AD 100	70x50	2,748.89	1,178.09	1,570.80	Golvin	5,049	17,000	-11,951	-236.70%	200/ha	85	Rorison 2001, Tassaux 1994
Aquae Neri	GA #3	Gallia Aquitania	AD 100-AD 200	-	4,582.30	1,382.30	3,200.00	Golvin	10,286	17,000	-6,714	-65.28%	200/ha	85	Rorison 2001, Tassaux 1994
Argentomagus	GA #4	Gallia Aquitania	AD 68-AD 96	-	3,780.00	380.00	3,400.00	Golvin	10,929	17,000	-6,071	-55.56%	200/ha	85	Rorison 2001
Sanxay	GA #13	Gallia Aquitania	AD 50-AD 117	-	4,589.15	1,109.15	3480	Golvin	11,186	16,600	-5,414	-48.40%	200/ha	83	Rorison 2001
Augusta Treverorum	GB #1	Gallia Belgica	AD 98-AD 117	100x79	6,204.64	2,707.62	3,497.02	Golvin	11,240	26,200	-14,960	-133.09%	200/ha	130	Hanson 2016
Samarobriva	GB #6	Gallia Belgica	AD 50-AD 150	114x100	8,953.53	1,814.26	7,139.27	Golvin	22,948	33,000	-10,052	-43.81%	200/ha	165	Hanson 2016
Aregenua	GL #4	Gallia Lugdunensis	AD 117-AD 138	-	3,224.66	824.66	2,400.00	Golvin	7,714	16,000	-8,286	-107.41%	200/ha	80	Hanson 2016
Gisacum	GL #16	Gallia Lugdunensis	AD 117-AD 138	-	4,920.53	1,520.53	3,400.00	Golvin	10,929	28,000	-17,071	-156.21%	200/ha	140	Hanson 2016
Iuliomagus	GL #17	Gallia Lugdunensis	AD 50-AD 150	-	6,736.80	1,736.80	5,000.00	Golvin	16,071	22,200	-6,129	-38.13%	200/ha	111	Hanson 2016
Lugdunum Phase 1	GL #19	Gallia Lugdunensis	19 BC-AD 50	80.3x54.4	3,430.87	2,231.17	1,199.70	Golvin	3,856	34,000	-30,144	-781.70%	200/ha	170	Hanson 2016
Mediolanum Aulercorum	GL #23	Gallia Lugdunensis	AD 50-AD 117	-	2,816.00	616.00	2,200.00	Golvin	7,071	12,800	-5,729	-81.01%	200/ha	64	Hanson 2016
Narbonne	GN #5	Gallia Narbonensis	AD 69-AD 79	121.6x93.2	8,901.01	2,744.96	6,156.05	Golvin	19,787	36,000	-16,213	-81.93%	200/ha	180	Hanson 2016
Nimes	GN #6	Gallia Narbonensis	AD 68-AD 96	133.4x101.4	10,623.89	2,084.00	8,539.89	Golvin	27,450	35,000	-7,550	-27.51%	200/ha	175	Hanson 2016
Toulouse (Phase 1)	GN #7	Gallia Narbonensis	0-AD 100	84x74	4,882.03	2,270.58	2,611.45	Golvin	8,394	18,200	-9,806	-116.82%	200/ha	91	Hanson 2016

Xanten Phase 1	GER INF #3	Germania Inferior	0-AD 100	90.5x81.5	5,792.90	2,251.34	3,541.56	Golvin	11,384	16,000	-4,616	-40.55%	200/ha	80	Hanson 2016
Capera	HISP L #3	Hispania Lusitania	AD 75 - AD 125	69x51	2,763.81	1,992.55	771.26	de Caceres	2,479	4,000	-1,521	-61.35%	250/ha	16	Hanson 2016
Emporiae	HISP T #5	Hispania Tarraconensis	0-AD 100	88x56	3,870.44	2,532.90	1,337.54	Golvin	4,299	6,000	-1,701	-39.56%	250/ha	24	Hanson 2016
Nuceria Phase 1	ITAL CAMP #8	Italia Reg. I Campania	AD 60-AD 65	95x72	5,372.12	1,548.80	3,823.32	Golvin	12,289	24,000	-11,711	-95.29%	200/ha	120	de Ligt 2012, Hanson 2016
Anfiteatro Castrense (Rome)	ITAL LAT #1	Italia Reg. I Latium	AD 218-AD 222	88x76	5,252.74	-	-	Bomgardner	10,000	1,000,000	-990,000	-9900.00%	200/ha	1783	Hanson 2016
The Colosseum	ITAL LAT #9	Italia Reg. I Latium	AD 70-AD 80	187.8x155.6	22,950.65	2,943.42	20,007.23	Golvin	64,309	1,000,000	-935,691	-1454.99%	200/ha	1783	Hanson 2016
Paestum Phase 1	ITAL LUCA #2	Italia Reg. III Lucania	1st Century BC	77.3x54.8	3,326.97	1,534.60	1,792.37	Golvin	5,761	25,000	-19,239	-333.94%	200/ha	125	Hanson 2016
Paestum Phase 2	ITAL LUCA #3	Italia Reg. III Lucania	AD 75-AD 125	84.9x62.4	4,160.85	1,537.30	2,623.55	Golvin	8,433	25,000	-16,567	-196.46%	200/ha	125	Hanson 2016
Amiternum	ITAL SAM-SAB #3	Italia Reg. IV Samnium-Sabina	0-AD 100	90x68	4,806.63	2,111.15	2,695.48	Golvin	8,664	13,000	-4,336	-50.05%	200/ha	65	Hanson 2016
Lucus Feroniae	ITAL ETR #7	Italia Reg. VII Etruria	AD 100-AD 125	46.1x44.2	1,600.34	862.38	737.96	Golvin	2,372	5,000	-2,628	-110.79%	200/ha	25	Hanson 2016
Rusellae	ITAL ETR #9	Italia Reg. VII Etruria	0-AD 25	48x37	1,394.86	471.23	923.63	Golvin	2,969	4,000	-1,031	-34.73%	200/ha	20	Hanson 2016
Patavium	ITAL VEN #2	Italia Reg. X Venetia	27 BC - AD 14	102.5x65.5	5,272.96	2,370.17	2,902.79	Golvin	9,330	26,000	-16,670	-178.66%	200ha	130	Hanson 2016
Eporedia	ITAL GAL TRANS #2	Italia Reg. XI Gallia Transpadana	AD 100-AD 200	96x72	5,428.67	2,210.11	3,218.56	Golvin	10,345	17,000	-6,655	-64.32%	200/ha	85	Hanson 2016
Iol Caesarea (Phase 1)	MAURE C #1	Mauretania Caesariensis	0-AD 100	124x67	6,525.08	3,490.30	3,034.78	Golvin	9,755	63,000	-53,245	-545.85%	200/ha	315	Hanson 2016
Iol Caesarea (Phase 2)	MAURE C #2	Mauretania Caesariensis	AD 150-AD 250	134x77	8,103.73	3,490.30	4,613.43	Golvin	14,829	63,000	-48,171	-324.85%	200/ha	315	Hanson 2016
Tipasa	MAURE C #4	Mauretania Caesariensis	AD 175-AD 225	77x55	3,326.16	1,566.86	1,759.30	Golvin	5,655	11,400	-5,745	-101.60%	200/ha	57	Hanson 2016
Virunum	NOR #2	Noricum	-	108x46	3,901.85	2,362.47	1,539.38	Jernej and Gugl 2004	4,948	7,400	-2,452	-49.56%	200/ha	37	Hanson 2016
Lambaesis (Phase 1) (L)	NUM #2	Numidia	AD 128-AD 170	88x75	5,183.62	2,937.38	2,246.24	Golvin	7,220	10,000	-2,780	-38.50%	200/ha	50	Hanson 2016
Rusicade	NUM #4	Numidia	AD 100-AD 150	78x59	3,614.40	1,413.71	2,200.69	Golvin	7,074	12,000	-4,926	-69.64%	200/ha	60	Hanson 2016
Simmithu	NUM #6	Numidia	0-AD 50	61x52.2	2,500.86	506.58	1,994.28	Bomgardner	6,410	12,200	-5,790	-90.32%	200/ha	61	Hanson 2016
Syracuse	SICI #2	Sicilia	27 BC-AD 14	146.8x118.7	13,685.68	2,176.38	11,509.30	Golvin, Wilson 1990	36,994	59,200	-22,206	-60.03%	200/ha	296	Hanson 2016

APPENDIX V: MAIN DATABASE

Africa Proconsularis

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Acholla	AP #1	Africa Proconsularis	AD 117-AD 138	90x86	6,078.98	2,459.86	3,619.12	Bomgardner, Golvin	11,633	7,750	3,883	33.38%	250/ha	31	Hanson 2016, Wilson 2011
Agbia	AP #2	Africa Proconsularis	AD 193-AD 235	57x42	1,880.24	945.61	934.63	Bomgardner, Golvin	3,004	3,000	4	0.14%	250/ha	12	Hanson 2016, Wilson 2011
Bararus	AP #3	Africa Proconsularis	AD 175-AD 225	98x73.5	5,657.22	1,879.06	3,778.16	Bomgardner, Golvin	12,144	0	12,144	100.00%	250/ha	?	Hanson 2016, Wilson 2011
Bulla Regia	AP #4	Africa Proconsularis	AD 117-AD 200	73.6x66	3,815.15	791.68	3,023.47	Bomgardner, Golvin	9,718	10,250	-532	-5.47%	250/ha	41	Hanson 2016, Wilson 2011
Carthage (Phase 1)	AP #5	Africa Proconsularis	27 BC-AD 14	120x93	8,765.04	1,864.92	6,900.12	Bomgardner, Golvin	22,179	85,750	-63,571	-286.63%	250/ha	343	Hanson 2016, Wilson 2011
Carthage (Phase 2)	AP #6	Africa Proconsularis	AD 100-AD 200	156x128	15,682.83	1,864.92	13,817.91	Bomgardner, Golvin	44,415	85,750	-41,335	-93.07%	250/ha	343	Hanson 2016, Wilson 2011
Lepcis Magna	AP #7	Africa Proconsularis	AD 56	100x90	7,068.58	2,104.08	4,964.50	Bomgardner, Golvin	15,957	90,000	-74,043	-464.00%	250/ha	466	Hanson 2016, Wilson 2011
Leptiminus	AP #8	Africa Proconsularis	AD 100-AD 200	85.84x65.12	4,390.29	1,568.94	2,821.35	Bomgardner, Golvin	9,069	13,000	-3,931	-43.35%	250/ha	52	Hanson 2016, Wilson 2011
Mactaris	AP #9	Africa Proconsularis	AD 175-AD 215	63.2x49.6	2,462.00	747.95	1,714.05	Bomgardner, Golvin	5,509	30,000	-24,491	-444.52%	250/ha	120	Wilson 2011
Sabratha	AP #10	Africa Proconsularis	AD 100-AD 200	115x99	8,941.75	2,501.49	6,440.26	Bomgardner, Golvin	20,701	8,750	11,951	57.73%	250/ha	35	Hanson 2016, Wilson 2011
Seressi	AP #11	Africa Proconsularis	AD 150-AD 200	76x65.2	3,891.80	1,646.23	2,245.57	Bomgardner, Golvin	7,218	0	7,218	100.00%	250/ha	?	Hanson 2016, Wilson 2011
Sufetula	AP #12	Africa Proconsularis	AD 160 (Onwards)	72x60	3,392.92	1,365.80	2,027.12	Bomgardner, Golvin	6,516	12,000	-5,484	-84.17%	250/ha	48	Hanson 2016, Wilson 2011
Thaenae	AP #13	Africa Proconsularis	AD 100-AD 150	90x61	4,311.83	1,606.92	2,704.91	Bomgardner, Golvin	8,694	7,750	944	10.86%	250/ha	31	Wilson 2011
Thapsus	AP #14	Africa Proconsularis	AD 100-AD 200	80x58	3,644.24	2,262.73	1,381.51	Bomgardner, Golvin	4,441	11,000	-6,559	-147.72%	250/ha	44	Hanson 2016, Wilson 2011
Theveste (Phase 1)	AP #15	Africa Proconsularis	AD 74-AD 79	83x70	4,563.16	1,638.02	2,925.14	Bomgardner, Golvin	9,402	16,750	-7,348	-78.15%	250/ha	67	Hanson 2016, Wilson 2011
Theveste (Phase 2)	AP #16	Africa Proconsularis	AD 200-AD 300	94.8x81.5	6,068.14	1,638.02	4,430.12	Bomgardner, Golvin	14,240	16,750	-2,510	-17.63%	250/ha	67	Hanson 2016, Wilson 2011
Thibaris	AP #17	Africa Proconsularis	AD 100-AD 200	61.2x51.5	2,475.41	507.99	1,967.42	Bomgardner, Golvin	6,324	0	6,324	100.00%	250/ha	?	Hanson 2016, Wilson 2011
Thignica	AP #18	Africa Proconsularis	AD 150-AD 200	65.2x52	2,662.81	863.05	1,799.76	Bomgardner, Golvin	5,785	20,000	-14,215	-245.73%	250/ha	80	Hanson 2016, Wilson 2011
Thimisua	AP #19	Africa Proconsularis	?	54.7x39.8	1,709.85	703.88	1,005.97	Bomgardner, Golvin	3,233	0	3,233	100.00%	250/ha	?	Hanson 2016, Wilson 2011
Thuburbo Maius	AP #20	Africa Proconsularis	AD 175-AD 215	73.6x61	3,526.12	1,181.86	2,344.26	Bomgardner, Golvin	7,535	6,250	1,285	17.06%	250/ha	25	Hanson 2016, Wilson 2011
Thysdrus ('Colosseum')	AP #21	Africa Proconsularis	AD 230-AD 238	147.9x122.2	14,194.79	1,965.53	12,229.26	Bomgardner, Golvin	39,308	43,750	-4,442	-11.30%	250/ha	175	Hanson 2016, Wilson 2011
Thysdrus (Minus Phase 1)	AP #22	Africa Proconsularis	AD 80	79x70	4,343.25	1,539.38	2,803.87	Bomgardner, Golvin	9,012	43,750	-34,738	-385.44%	250/ha	175	Hanson 2016, Wilson 2011

Thysdrus (Minus Phase 2)	AP #23	Africa Proconsularis	AD 100-AD 200	92x72	5,202.47	1,884.95	3,317.52	Bomgardner, Golvin	10,663	43,750	-33,087	-310.28%	250/ha	175	Hanson 2016, Wilson 2011
Ulissipira	AP #24	Africa Proconsularis	AD 100-AD 200	69x53	2,872.20	1,206.37	1,665.83	Bomgardner, Golvin	5,354	15,000	-9,646	-180.14%	250/ha	?	Hanson 2016, Wilson 2011
Uthina	AP #25	Africa Proconsularis	AD 100-AD 125	96x81	6,107.25	1,546.25	4,561.00	Bomgardner, Golvin	14,660	30,000	-15,340	-104.63%	250/ha	120	Hanson 2016, Wilson 2011
Utica	AP #26	Africa Proconsularis	0-AD 100	118x98	9,082.34	3,769.91	5,312.43	Bomgardner, Golvin	17,076	22,000	-4,924	-28.84%	250/ha	88	Hanson 2016, Wilson 2011

ALPES COTTIAE, ALPES MARITIMAE AND ALPES POENINAE

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Segusium	ALP C #1	Alpes Cottiae	0-AD 25	60x52	2,450.44	1,244.07	1,206.37	Golvin	3,878	1,400	2,478	63.90%	200/ha	7	Hanson 2016
Cemenelum	ALP M #1	Alpes Maritimae	AD 14 (Probably)	67.2x56	2,955.61	1,257.26	1,698.35	Golvin	5,459	3,600	1,859	34.05%	200/ha	18	Hanson 2016
Octodurus	ALP POE #1	Alpes Poeninae	AD 41-AD 54	118x106	9,823.76	3,603.40	6,220.36	Golvin	19,994	4,400	15,594	77.99%	200/ha	22	Hanson 2016

BRITANNIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Caerleon (L)	BRIT #1	Britannia	AD 70-AD 80	81.38x67.67	4,189.83	1,832.27	2,357.56	Golvin	7,578	5,300 (+)	2,278 (-)	100.00%	150/ha	?	
Caerwent	BRIT #2	Britannia	?	63x53	2,622.44	1,209.51	1,412.93	Golvin	4,542	2,700	1,842	40.55%	150/ha	18	Wilson 2011, Hanson 2016, Millett 1990
Caistor St Edmund	BRIT #3	Britannia	?	-	-	1,036.72	-	Wilmott	-	2,700	-	-	150/ha	18	Hanson 2016
Carmarthen	BRIT #4	Britannia	AD 74-AD 125	91x67	4,788.57	1,178.09	3,610.48	Wilmott	11,605	2,700	8,905	76.73%	150/ha	18	Millett 1990
Charterhouse-On-Mendip (A)	BRIT #5	Britannia	?	71.62x61	3,431.26	612.73	2,818.53	Burnham and Wacher 1990	9,060	0	9,060	100.00%	150/ha	Unknown	
Chester (L)	BRIT #6	Britannia	AD 76-AD 100	88x76.5	5,287.30	2,214.61	3,072.69	Wilmott (2018)	9,877	5,300 (+)	4,577 (-)	100.00%	150/ha	Unknown	Wilmott (2018)
Chichester	BRIT #7	Britannia	AD 70-AD 90	70x58	3,188.71	2,021.64	1,167.07	Wilmott	3,751	6,300	-2,549	-67.94%	150/ha	42	Hanson 2016
Cirencester	BRIT #8	Britannia	AD 98-AD 117	89x81	5,661.93	1,577.86	4,084.07	Golvin	13,127	13,950	-823	-6.27%	150/ha	93	Hanson 2016
Dorchester	BRIT #9	Britannia	AD 70	88x77	5,321.85	2,221.51	3,100.34	Golvin	9,965	5,850	4,115	41.30%	150/ha	39	Hanson 2016
Frilford	BRIT #10	Britannia	?	-	-	-	-	Kamash et al 2011	-	-	-	-	150/ha	Unknown	Kamash et al 2011
Inveresk (A?)	BRIT #11	Britannia	c. AD 142	-	-	535.64	-	Neighbour, Wilmott	-	0	-	-	150/ha	Unknown	Neighbour, Wilmott

Londinium (Masonary Built)	BRIT #12	Britannia	AD 125	?	7,133.00	2,190.00	4,943.00	Bateman	15,888	30,000	-14,112	-88.82%	150/ha	200	Wilson 2011, Millett 1990
Newstead	BRIT #13	Britannia	c. AD 80 - AD 180	70x60	3,298.67	871.79	2,426.88	Wilmott, Golvin	7,801	0	7,801	100.00%	150/ha	Unknown	
Richborough	BRIT #14	Britannia	?	62x50	2,434.73		2,434.73	Wilmott	7,826	0	7,826	100.00%	150/ha	Unknown	
Silchester	BRIT #15	Britannia	AD 98-AD 117	80x70	4,398.22	1,400.83	2,997.39	Wilmott, Fulford	9,634	6,750	2,884	29.94%	150/ha	45	Hanson 2016
Tomen-y-Mur (A)	BRIT #16	Britannia	AD 78-AD 85 or AD 120-AD 140	52x46	1,878.67	871.79	1,006.88	Wilmott, Golvin, Gresham	3,236	0	3,236	100.00%	150/ha	Unknown	
Verulamiun	BRIT #17	Britannia	AD 117-AD 138				0.00	Wilmott, Golvin.	0	13,500	-13,500	-	150/ha	90	Hanson 2016

CORSICA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Aleria (*)	COR #1	Corsica	AD 200-AD 300	39.6x34	1,057.46	557.94	499.52	Golvin	1,606	6,000	-4,394	-273.69%	?	?	Wilson 2011

DALMATIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Burnum (L)	DAL #1	Dalmatia	AD75-AD100			1,140.39	0	Glavicic and Miletic	0	0	0	-			
Salona	DAL #2	Dalmatia	AD150-AD200	124.75x100.65	9,861.52	2,030.14	7,831.38	Golvin	25,172	25,000	172	0.68%	431/ha	58	Wilson, Hanson

GALLIA AQUITANIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Aginnum	GA #1	Gallia Aquitania	27 BC-AD 68	115x92.5	8,354.67	1,195.76	7,158.91	Golvin	23,011	15,000	8,011	34.81%	200/ha	75	Wilson 2011, Hanson 2016
Aquae Neri	GA #2	Gallia Aquitania	0-AD 100	70x50	2,748.89	1,178.09	1,570.80	Golvin	5,049	17,000	-11,951	-236.70%	200/ha	85	Rorison 2001, Tassaux 1994
Aquae Neri	GA #3	Gallia Aquitania	AD 100-AD 200	-	4,582.30	1,382.30	3,200.00	Golvin	10,286	17,000	-6,714	-65.28%	200/ha	85	Rorison 2001, Tassaux 1994
Argentomagus	GA #4	Gallia Aquitania	AD 68-AD 96	-	3,780.00	380.00	3,400.00	Golvin	10,929	17,000	-6,071	-55.56%	200/ha	85	Rorison 2001
Augustoritum Lemovicum	GA #5	Gallia Aquitania	0-AD 100	137x116	12,481.54	2,563.53	9,918.01	Golvin	31,879	21,600	10,279	32.24%	200/ha	108	Wilson 2011, Hanson 2016

Avaricum	GA #6	Gallia Aquitania	AD 50-AD 100	-	-		-	Golvin	-	19,800	-	-	200/ha	99	Wilson 2011, Hanson 2016
Burdigala	GA #7	Gallia Aquitania	AD 200-AD 225	132.3x110.6	11,483.55	2,560.13	8,923.42	Golvin	28,682	17,200	11,482	40.03%	200/ha	86	Wilson 2011, Hanson 2016
Cassinomagus	GA #8	Gallia Aquitania	AD 117-AD 138	-	-	1,885.00	-	Golvin	-	4,200	-	-	200/ha	21 (?)	PECS 1976
Catiriacum	GA #9	Gallia Aquitania	AD 117-AD 138	-	2,287.78	527.78	1760	Golvin	5,657	0	5,657	100.00%	200/ha	Unknown	Rorison 2001
Limonum	GA #10	Gallia Aquitania	27 BC-AD 68 (Probably)	155.8x130.5	15,968.63	2,668.86	13,299.77	Golvin	42,749	16,000	26,749	62.57%	200/ha	80	Wilson 2011, Hanson 2016
Lugdunum Convenarum	GA #11	Gallia Aquitania	AD 100-AD 200	83x55	3,585.34	1,077.69	2,507.65	Golvin	8,060	9,800	-1,740	-21.58%	200/ha	49	Hanson 2016
Saintes	GA #12	Gallia Aquitania	27 BC-AD 68	126.4x101.6	10,086.27	2,007.35	8,078.92	Golvin	25,968	24,800	1,168	4.50%	200/ha	124	Wilson 2011, Hanson 2016
Sanxay	GA #13	Gallia Aquitania	AD 50-AD 117	-	4,589.15	1,109.15	3480	Golvin	11,186	16,600	-5,414	-48.40%	200/ha	83	Rorison 2001
Segodunum	GA #14	Gallia Aquitania	25 BC- 0	110x97	8,380.19	961.52	7,418.67	Golvin	23,846	7,600	16,246	68.13%	200/ha	38	Hanson 2016, Wilson
Surgeres	GA #15	Gallia Aquitania	0-AD 100	75x55	3,239.76	-	-	Golvin	-	0	-	-	200/ha	Unknown	Rorison 2001
Vesunna	GA #16	Gallia Aquitania	0-AD 100	129x105.4	10,678.74	2,113.50	8,565.24	Golvin	27,531	9,600	17,931	65.13%	200/ha	48	Wilson 2011, Hanson 2016

GALLIA BELGICA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Augusta Treverorum	GB #1	Gallia Belgica	AD 98-AD 117	100x79	6,204.64	2,707.62	3,497.02	Golvin	11,240	26,200	-14,960	-133.09%	200/ha	130	Hanson 2016
Champlieu	GB #2	Gallia Belgica	AD 117-AD 138	-	1,420.87	490.87	930	Golvin	2,989	750	2,239	74.91%	200/ha	3.75 (?)	PECS 1976
Divodurum Mediomatricorum	GB #3	Gallia Belgica	AD 68-AD 96	148x124.3	14,448.49	2,121.87	12,326.62	Golvin	39,621	10,400	29,221	73.75%	200/ha	52	Hanson 2016
Grannum	GB #4	Gallia Belgica	0-AD 100	-	6,466.59	1,366.59	5,100.00	Golvin	16,393	4,200	12,193	74.38%	200/ha	21	Hanson 2016
Iuliobonna (Phase 1)	GB #5	Gallia Belgica	0-AD 100	78x75	4,594.57	1,696.46	2,898.11	Golvin	9,315	7,000	2,315	24.86%	200/ha	35+	Hanson 2016
Iuliobonna (Phase 2)	GB #6	Gallia Belgica	AD 100-AD 200	-	6,196.46	1,696.46	4500	Golvin	14,464	7,000	7,464	51.60%	200/ha	35+	Hanson 2016
Samarobriva	GB #7	Gallia Belgica	AD 50-AD 150	114x100	8,953.53	1,814.26	7,139.27	Golvin	22,948	33,000	-10,052	-43.81%	200/ha	165	Hanson 2016

GALLIA LUGDUNENSIS

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Alauna	GL #1	Gallia Lugdunensis	AD 117-AD138	-	2,590.87	490.87	2100	Golvin and Sear	6,750	0	6,750	100.00%	200/ha	Unknown	Hanson 2016
Alleants	GL #2	Gallia Lugdunensis	AD 117-AD 138	-	2,572.55	572.55	2000	Golvin and Sear	6,429	3,600	2,829	44.00%	200/ha	18	Rorison 2001
Aquae Segetae	GL #3	Gallia Lugdunensis	AD 50-AD 117	-	-	-	-	Sear, Golvin	-	0	-	-	200/ha	Unknown	
Aregenua	GL #4	Gallia Lugdunensis	AD 117-AD 138	-	3,224.66	824.66	2,400.00	Golvin	7,714	16,000	-8,286	-107.41%	200/ha	80	Hanson 2016
Areines	GL #5	Gallia Lugdunensis	AD 50-AD 117	-	2,530.92	530.92	2,000.00	Golvin	6,429	0	6,429	100.00%	200/ha	Unknown	Rorison 2001
Augstodunum	GL #6	Gallia Lugdunensis	AD 75-AD 125	154x130	15,723.67	2,847.85	12,875.82	Golvin	41,387	34,400	6,987	16.88%	200/ha	172	Hanson 2016
Augustomagus Sylvanectum	GL #7	Gallia Lugdunensis	27 BC-AD 14 (Probably)	90x83	5,866.92	1,124.49	4,742.43	Golvin	15,244	9,600	5,644	37.02%	200/ha	48	Hanson 2016
Autricum	GL #8	Gallia Lugdunensis	AD 100-AD 200	-	-	-	-		-	30,400	-	-	200/ha	152	Hanson 2016
Bonnee	GL #9	Gallia Lugdunensis	AD 117-AD 138	-	-	-	-	Sear	-	0	-	-	200/ha	Unknown	?
Bouzy-la-Foret	GL #10	Gallia Lugdunensis	AD 117-AD 138	-	2,054.46	254.46	1,800.00	Golvin	5,786	0	5,786	100.00%	200/ha	Unknown	Rorison 2001
Caesarodunum Turonum	GL #11	Gallia Lugdunensis	AD 117-AD 138	145x127	14,463.10	2,670.35	11,792.75	Golvin	37,905	13,400	24,505	64.65%	200/ha	67	Hanson 2016
Canetonum	GL #12	Gallia Lugdunensis	AD 50-AD 117	-	3,006.47	706.47	2,300.00	Golvin	7,393	0	7,393	100.00%	200/ha	Unknown	?
Chenevieres	GL #13	Gallia Lugdunensis	AD 50-AD 150	-	3,606.32	1,206.32	2,400.00	Golvin	7,714	0	7,714	100.00%	200/ha	Unknown	
Derventum	GL #14	Gallia Lugdunensis	AD 50-AD 117	-	2,682.55	572.55	2,110.00	Golvin	6,782	0	6,782	100.00%	200/ha	Unknown	Rorison 2011
Gennes	GL #15	Gallia Lugdunensis	AD 117-AD 138	-	-	1,320.08	-	Golvin	-	0	-	-	200/ha	Unknown	
Gisacum	GL #16	Gallia Lugdunensis	AD 117-AD 138	-	4,920.53	1,520.53	3,400.00	Golvin	10,929	28,000	-17,071	-156.21%	200/ha	140	Hanson 2016
Iuliomagus	GL #17	Gallia Lugdunensis	AD 50-AD 150	-	6,736.80	1,736.80	5,000.00	Golvin	16,071	22,200	-6,129	-38.13%	200/ha	111	Hanson 2016
Locamariaquer	GL #18	Gallia Lugdunensis	AD 50-AD 117	-	-	1,708.24	-	Sear, Golvin	-	3,000	-	-	200/ha	15	Rorison 2011
Lugdunum Phase 1	GL #19	Gallia Lugdunensis	19 BC-AD 50	80.3x54.4	3,430.87	2,231.17	1,199.70	Golvin	3,856	34,000	-30,144	-781.70%	200/ha	170	Hanson 2016
Lugdunum Phase 2	GL #20	Gallia Lugdunensis	AD 117-AD 138	143.3x117.4	13,213.08	2,231.17	10,981.91	Golvin	35,299	34,000	1,299	3.68%	200/ha	170	Hanson 2016
Lutetia Parisiorum	GL #21	Gallia Lugdunensis	AD 50-AD 117	-	9,574.36	2,414.36	7,160.00	Golvin	23,014	9,000	14,014	60.89%	200/ha	45	Hanson 2016
Mauves	GL #22	Gallia Lugdunensis	AD 50-AD 117	-	-	-	-	Golvin	-	7,000	-	-	200/ha	35	Rorison 2011
Mediolanum Aulercorum	GL #23	Gallia Lugdunensis	AD 50-AD 117	-	2,816.00	616.00	2,200.00	Golvin	7,071	12,800	-5,729	-81.01%	200/ha	64	Hanson 2016
Noviomagus Lexoviorum	GL #24	Gallia Lugdunensis	AD 117-AD 138	-	-	2,166.91	-	Golvin	-	16,200	-	-	200/ha	81	Hanson 2016
Noiodounon Diablintum	GL #25	Gallia Lugdunensis	AD 117-AD 138	-	3,756.63	1,256.63	2,500.00	Golvin	8,036	5,600	2,436	30.31%	200/ha	28	Hanson 2016
Silva Martis	GL #26	Gallia Lugdunensis	AD 50-AD 117	-	-	-	-	Golvin	-	0	-	-	200/ha	Unknown	
Villanodunum	GL #27	Gallia Lugdunensis	AD 117-AD 138	-	-	-	-	Golvin	-	0	-	-	200/ha	Unknown	Rorison 2001

GALLIA NARBONENSIS

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Arles	GN #1	Gallia Narbonensis	AD 68-AD 96	136.2x107.6	11,510.10	2,166.23	9,343.87	Golvin	30,034	12,400	17,634	58.71%	200/ha	62	Hanson 2016
Baeterrae	GN #2	Gallia Narbonensis	AD 50-AD 150	103.6x74	6,021.17	2,580.50	3,440.67	Golvin	11,059	3,000	8,059	72.87%	200/ha	15	Hanson 2016
Forum Iulii	GN #3	Gallia Narbonensis	27 BC-AD 68	113.7x85.7	7,652.99	2,110.90	5,542.09	Golvin	17,814	9,800	8,014	44.99%	200/ha	49	Hanson 2016
Narbonne	GN #4	Gallia Narbonensis	AD 69-AD 79	121.6x93.2	8,901.01	2,744.96	6,156.05	Golvin	19,787	36,000	-16,213	-81.93%	200/ha	180	Hanson 2016
Nimes	GN #5	Gallia Narbonensis	AD 68-AD 96	133.4x101.4	10,623.89	2,084.00	8,539.89	Golvin	27,450	35,000	-7,550	-27.51%	200/ha	175	Hanson 2016
Toulouse (Phase 1)	GN #6	Gallia Narbonensis	0-AD 100	84x74	4,882.03	2,270.58	2,611.45	Golvin	8,394	18,200	-9,806	-116.82%	200/ha	91	Hanson 2016
Toulouse (Phase 2)	GN #7	Gallia Narbonensis	AD 75-AD 150	111x101	8,805.09	2,270.58	6,534.51	Golvin	21,004	18,200	2,804	13.35%	200/ha	91	Hanson 2016

GERMANIA INFERIOR

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Castra Vetera (L)	GER INF #1	Germania Inferior	AD 41-AD 68	98x84	6,465.39	1,852.55	4,612.84	Golvin	14,827	0	14,827	100.00%	200/ha		Hanson 2016
Noviomagus Batavorum	GER INF #2	Germania Inferior	AD 71-AD 104	?	?	1,884.95	-	Golvin	-	8,000	-	-	200/ha	40	Willems and van Endkevort 2009
Xanten Phase 1	GER INF #3	Germania Inferior	0-AD 100	90.5x81.5	5,792.90	2,251.34	3,541.56	Golvin	11,384	16,000	-4,616	-40.55%	200/ha	80	Hanson 2016
Xanten Phase 2	GER INF #4	Germania Inferior	AD 175-AD 200	96.5x87	6,593.81	2,251.34	4,342.47	Golvin	13,958	16,000	-2,042	-14.63%	200/ha	80	Hanson 2016

GERMANIA SUPERIOR

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Arnsburg (A)	GER SUP #1	Germania Superior	AD 68-AD 96	32x31	779.11	-	-	Sommer	-	0	-	-	200/ha	Unkown	
Augusta Raurica (Augst-Neun Türme)	GER SUP #2	Germania Superior	AD 73-AD 74	81x68	4,325.97	1,385.44	2,940.53	Hufschmid, Golvin	9,452	8,600	852	9.01%	200/ha	43	Hanson 2016
Augusta Raurica (Augst-Sichelengraben)	GER SUP #3	Germania Superior	AD 170 - AD 200	102x87	6,969.62	1,326.55	5,643.07	Hufschmid, Golvin	18,138	8,600	9,538	52.59%	200/ha	43	Hanson 2016
Aventicum	GER SUP #4	Germania Superior	AD 75-AD 125	99x87	6,764.63	1,562.15	5,202.48	Golvin	16,722	7,200	9,522	56.94%	200/ha	36	Hanson 2016
Bern-Enge	GER SUP #5	Germania Superior	AD 50-AD 125	42.6x38.5	1,288.13	509.40	778.73	Golvin	2,503	0	2,503	100.00%	200/ha	Unknown	
Burladingen (A)	GER SUP #6	Germania Superior	-	40.5x39	1,240.53	-	-	Sommer	-	0	-	-	200/ha	Unknown	
Dambach (A)	GER SUP #7	Germania Superior	-	35x28	769.69	-	-	Sommer	-	0	-	-	200/ha	Unknown	
Octodurus	GER SUP #8	Germania Superior	AD 41-AD 54	118x106	9,823.76	3,603.40	6,220.36	Golvin	19,994	4,400	15,594	77.99%	200/ha	22	Hanson 2016
Vesontio	GER SUP #9	Germania Superior	AD 75-AD 125	110x84.6	7,308.91	1,782.22	5,526.69	Golvin	17,764	16,400	1,364	7.68%	200/ha	82	Hanson 2016
Vindonissa (L)	GER SUP #10	Germania Superior	14 BC-30 AD	112x98	8,620.53	2,563.53	6,057.00	Golvin	19,469	0	19,469	100.00%	200/ha	Unknown	Hanson 2016
Zugmantel (A)	GER SUP #11	Germania Superior	-	26x26	530.92	-	-	Sommer	-	0	-	-	200/ha	Unknown	

HISPANIA BAETICA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Astigi	HISP B #1	Hispania Baetica	AD 25-AD 75	130x107	10,924.88	2,643.88	8,281.00	Jiménez Hernández 2015	26,618	19,500	7,118	26.74%	250/ha	78	Jiménez Hernández 2015
Carmo	HISP B #2	Hispania Baetica	50BC-30BC	131.2x111.4	11,479.12	1,801.07	9,678.05	Golvin	31,108	10,600	20,508	65.93%	250/ha	42	Hanson 2016
Corduba	HISP B #3	Hispania Baetica	AD 50-AD 100	178x154	21,529.33	5,504.07	16,025.26	Jiménez Hernández 2015	51,510	24,750	26,760	51.95%	250/ha	99	Hanson 2016
Gades (?)	HISP B #4	Hispania Baetica	-	-	-	-	-	Ceballos Hornero	-	20,250	-	-	250/ha	81	Hanson 2016
Hispalis (?)	HISP B #5	Hispania Baetica	-	-	-	-	-	Ceballos Hornero	-	11,250	-	-	250/ha	45	Hanson 2016
Italica	HISP B #6	Hispania Baetica	AD 125-AD 175	156.5x134	16,470.58	2,751.64	13,718.94	Golvin	44,097	12,750	31,347	71.09%	250/ha	51	Carreras 1996/Hidalgo 2003
Torreparedones	HISP B #7	Hispania Baetica	-	-	-	-	-	Monterroso-Checa 2017	-	2,750	-	-	250/ha	11	Monterroso-Checa 2017
Ugultunia	HISP B #8	Hispania Baetica	AD 98-AD 117	72x65	3,675.66	-	-	Pizzo et al 2016	-	1,250	-	-	250/ha	5	Pizzo et al 2016

GALLIA LUISITANIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Augusta Emerita	HISP L #1	Hispania Lusitania	4 Phases	126.3x102.6	10,177.40	2,087.11	8,090.29	Golvin	26,005	20,250	5,755	22.13%	250/ha	81	Hanson 2016
Bobadela	HISP L #2	Hispania Lusitania	-	-	-	1,535.64	-	Frade and Portas	-	0	-	-	250/ha	Unknown	Cabello, Ochoa and Cerdan 2009
Capera	HISP L #3	Hispania Lusitania	AD 75 - AD 125	69x51	2,763.81	1,992.55	771.26	de Caceres	2,479	4,000	-1,521	-61.35%	250/ha	16	Hanson 2016
Conimbriga	HISP L #4	Hispania Lusitania	AD 0-AD 100	94x80	5,906.19	1,696.46	4,209.73	Golvin	13,531	5,750	7,781	57.51%	250/ha	23	Hanson 2016
Ebora	HISP L #5	Hispania Lusitania	-	80x65	4,084.07	1,060.28	3,023.79	Correia	9,719	3,000	6,719	69.13%	250/ha	12	Hanson 2016

HISPANIA TARRACONENSIS

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Barcino (*)	HISP T #1	Hispania Tarraconensis	-	117x98	9,005.37	1,840.77	7,164.60	Sales Carbonell	23,029	3,000	20,029	86.97%	250/ha	12	Hanson 2016
Bracara	HISP T #2	Hispania Tarraconensis	AD 68-AD 96	132x82.5m	8,553m		-	Golvin	-	7,250	-	-	250/ha	29	Hanson 2016
Carthago Nova	HISP T #3	Hispania Tarraconensis	-				0.00		0	14,500	-14,500	-	250/ha	58	Hanson 2016
Castulo (?)	HISP T #4	Hispania Tarraconensis	-				0.00		0	10,000	-10,000	-	250/ha	40	Hanson 2016
Emporiae	HISP T #5	Hispania Tarraconensis	0-AD 100	88x56	3,870.44	2,532.90	1,337.54	Golvin	4,299	6,000	-1,701	-39.56%	250/ha	24	Hanson 2016
Leon (L)	HISP T #6	Hispania Tarraconensis	AD 74 (Possibly slighlty later)	90x70	4,948.00	1,184.95	3,763.05	Vidal Encinas 2005	12,096	4,750	7,346	60.73%	250/ha	19	Vidal Encinas 2005
Segobriga	HISP T #7	Hispania Tarraconensis	AD 30-AD 60	75x68.5	4,034.98	1,081.49	2,953.49	Golvin	9,493	2,750	6,743	71.03%	250/ha	11	Hanson 2016
Sisapo	HISP T #8	Hispania Tarraconensis					0.00		0	3,000	-3,000	-	250/ha	12	Hanson 2016
Tarraco	HISP T #9	Hispania Tarraconensis	0-AD 25	148.1x118.9	13,830.14	3,659.07	10,171.07	Golvin	32,693	17,500	15,193	46.47%	250/ha	70	de Ligt 2012, Hanson 2016

ITALIA REG. I CAMPANIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Abella	ITAL CAMP #1	Italia Reg. I Campania	75BC- 0	79x53	3,288.46	-	-	Welch, Golvin	-	5,800	-	-	200/ha	29	de Ligt 2012, Hanson 2016
Cales	ITAL CAMP #2	Italia Reg. I Campania	1st Century BC	110x72	6,220.35	-	-	Tosi, Welch	-	12,800	-	-	200/ha	64	de Ligt 2012, Hanson 2016
Capua (Imperial)	ITAL CAMP #3	Italia Reg. I Campania	AD 75-AD 125	165x135	17,494.74	2,737.41	14,757.33	Golvin	47,434	36,800	10,634	22.42%	200/ha	184	de Ligt 2012, Hanson 2016
Capua (Republican)	ITAL CAMP #4	Italia Reg. I Campania	1st Century BC	-	-	-	-	Welch, Golvin	-	36,800	-	-	200/ha	184	de Ligt 2012, Hanson 2016
Cumae	ITAL CAMP #5	Italia Reg. I Campania	1st Century BC	-	-	-	-	Welch, Golvin	-	16,000	-	-	200/ha	80	de Ligt 2012, Hanson 2016
Liternum	ITAL CAMP #6	Italia Reg. I Campania	1st Century BC	-	-	-	-	Welch, Golvin	-	2,600	-	-	200/ha	13	de Ligt 2012, Hanson 2016
Nola	ITAL CAMP #7	Italia Reg. I Campania	1st Century BC	138x108	11,705.57	-	-	Welch, Golvin	-	13,000	-	-	200/ha	65	de Ligt 2012, Hanson 2016
Nuceria Phase 1	ITAL CAMP #8	Italia Reg. I Campania	AD 60-AD 65	95x72	5,372.12	1,548.80	3,823.32	Golvin	12,289	24,000	-11,711	-95.29%	200/ha	120	de Ligt 2012, Hanson 2016
Nuceria Phase 2	ITAL CAMP #9	Italia Reg. I Campania	AD 98-AD 117 (Probably)	125x102	10,013.82	1,548.80	8,465.02	Golvin	27,209	24,000	3,209	11.79%	200/ha	120	de Ligt 2012, Hanson 2016
Pompeii	ITAL CAMP #10	Italia Reg. I Campania	1st Century BC	134.8x102.5	10,851.84	1,788.35	9,063.49	Welch	29,133	12,000	17,133	58.81%	200/ha	60	de Ligt 2012, Hanson 2016

Puetoli (Phase 2)	ITAL CAMP #11	Italia Reg. I Campania	AD 68-AD 96	149x116	13,574.82	2,467.40	11,107.42	Golvin	35,702	24,000	11,702	32.78%	200/ha	120	de Ligt 2012, Hanson 2016
Puteoli (Phase 1)	ITAL CAMP #12	Italia Reg. I Campania	1st Century BC	130x95	9,699.66	1,896.73	7,802.93	Welch, Golvin	25,081	24,000	1,081	4.31%	200/ha	120	de Ligt 2012, Hanson 2016
Suessa Aurunca	ITAL CAMP #13	Italia Reg. I Campania	1st Century BC	-	-	-	-	Welch, Golvin	-	7,000	-	-	200/ha	35	de Ligt 2012, Hanson 2016
Teanum Sidicinum	ITAL CAMP #14	Italia Reg. I Campania	1st Century BC	79x53	3,288.46	-	-	Welch	-	18,000	-	-	200/ha	90	de Ligt 2012, Hanson 2016
Telesia	ITAL CAMP #15	Italia Reg. I Campania	1st Century BC	99x77	5,987.09	2,456.72	3,530.37	Welch, Golvin	11,348	4,000	7,348	64.75%	200/ha	20	Hanson 2016

ITALIA REG. I LATIUM

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Anfiteatro Castrense (Rome)	ITAL LAT #1	Italia Reg. I Latium	AD 218-AD 222	88x76m	5,252.74	-	-	Bomgardner	10,000	1,000,000	-990,000	-9900.00%	200/ha	1783	Hanson 2016
Aquinum	ITAL LAT #2	Italia Reg. I Latium	0-AD 100	115x96	8,670.79	1,555.08	7,115.71	Golvin	22,872	14,200	8,672	37.92%	200/ha	71	Hanson 2016
Casinum	ITAL LAT #3	Italia Reg. I Latium	0-AD 100	85x69	4,606.36	1,470.26	3,136.10	Golvin	10,080	2,000	8,080	80.16%	200/ha	10	Hanson 2016
Castra Albana (L)	ITAL LAT #4	Italia Reg. I Latium	AD 212 +	116.5x94	8,600.89	2,385.64	6,215.25	Golvin	19,978	0	19,978	100.00%	200/ha	Unknown	Hanson 2016
Fabrateria Nova	ITAL LAT #5	Italia Reg. I Latium	AD 175 - AD 200	76.5x57.5	3,454.77	-	-	Tosi et al	-	5,600	-	-	200/ha	28	Hanson 2016
Frusino	ITAL LAT #6	Italia Reg. I Latium	AD 75-AD 125	78x57	3,491.88	-	-	Tosi et al	-	2,800	-	-	200/ha	14	Hanson 2016
Lanuvium (*)	ITAL LAT #7	Italia Reg. I Latium	AD 100 - AD 200	52x40	1,662.62	688.00	974.62	Renner and Aryamontri	3,133	-	-	-	200/ha	Unknown	Hanson 2016
Tarracina	ITAL LAT #8	Italia Reg. I Latium	0 - AD 75	90x68	4,806.63	2,280.79	2,525.84	Tosi et al	8,119	8,000	119	1.46%	200/ha	40	Hanson 2016
The Colosseum	ITAL LAT #9	Italia Reg. I Latium	AD 70-AD 80	187.8x155.6	22,950.65	2,943.42	20,007.23	Golvin	64,309	1,000,000	-935,691	-1454.99%	200/ha	1783	Hanson 2016
Tusculum	ITAL LAT #10	Italia Reg. I Latium	AD 100-AD 200	73x54	3,096.03	1,154.53	1,941.50	Golvin	6,241	3,800	2,441	39.11%	200/ha	19	Hanson 2016
Venafrum	ITAL LAT #11	Italia Reg. I Latium	27-BC-AD 14	110x85	7,343.47	1,649.33	5,694.14	Tosi, Golvin	18,303	5,400	12,903	70.50%	200/ha	27	Hanson 2016

ITALIA REG. II APULIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Herdoniae	ITAL APUL #1	Italia Reg. II Apulia	c. AD 50	75.5x59.4	3,522.27	994.81	2,527.46	Golvin	8,124	3,800	4,324	53.22%	200/ha	19	Hanson 2016
Luceria	ITAL APUL #2	Italia Reg. II Apulia	AD 100-AD 125	126.8x94.5	9,411.11	2,551.47	6,859.64	Golvin	22,049	15,000	7,049	31.97%	200/ha	75	Hanson 2016
Lupiae (Phase 1)	ITAL APUL #3	Italia Reg. II Apulia	27BC-AD 14 (Probably)	94x75	5,537.05	1,426.29	4,110.76	Golvin	13,213	4,000	9,213	69.73%	200/ha	20	Hanson 2016
Lupiae (Phase 2)	ITAL APUL #4	Italia Reg. II Apulia	AD 117-AD 180	101.9x83	6,642.66	1,426.29	5,216.37	Golvin	16,767	4,000	12,767	76.14%	200/ha	20	Hanson 2016
Venusia	ITAL APUL #5	Italia Reg. II Apulia	AD 100-AD 200	98x77	5,926.61	1,685.46	4,241.15	Golvin	13,632	8,800	4,832	35.45%	200/ha	44	Hanson 2016

ITALIA REG. III LUCANIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Grumentum	ITAL LUCA #1	Italia Reg. III Lucania	Possibly 1st Century BC	90x70	4,948.00	1,884.95	3,063.05	Golvin	9,846	6,600	3,246	32.96%	200/ha	33	Hanson 2016
Paestum Phase 1	ITAL LUCA #2	Italia Reg. III Lucania	1st Century BC	77.3x54.8	3,326.97	1,534.60	1,792.37	Golvin	5,761	25,000	-19,239	-333.94%	200/ha	125	Hanson 2016
Paestum Phase 2	ITAL LUCA #3	Italia Reg. III Lucania	AD 75-AD 125	84.9x62.4	4,160.85	1,537.30	2,623.55	Golvin	8,433	25,000	-16,567	-196.46%	200/ha	125	Hanson 2016

ITALIA REG. IV SAMNIUM-SABINA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m^2)	Size of Arena (m^2)	Size of Cavea (m^2)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Alba Fucentia	ITAL SAM-SAB #1	Italia Reg. IV Samnium-Sabina	AD 14-AD 54	103x76	6,148.09	1,859.82	4,288.27	Golvin	13,784	6,600	7,184	52.12%	200/ha	33	Hanson 2016
Alifae	ITAL SAM-SAB #2	Italia Reg. IV Samnium-Sabina	25BC - AD 75	109x82	7,019.88	2,544.69	4,475.19	Tosi	14,385	4,400	9,985	69.41%	200/ha	22	Hanson 2016
Amiternum	ITAL SAM-SAB #3	Italia Reg. IV Samnium-Sabina	0-AD 100	90x68	4,806.63	2,111.15	2,695.48	Golvin	8,664	13,000	-4,336	-50.05%	200/ha	65	Hanson 2016

Forum Novum	ITAL SAM-SAB #4	Italia Reg. IV Samnium-Sabina	0-AD 100	-	-	883.57	-	Gaffney and Patterson	2,000	800	1,200	60.00%	200/ha	4	De Ligt 2012, Gaffney 2004
Tibur	ITAL SAM-SAB #5	Italia Reg. IV Samnium-Sabina	AD 100-AD 200	85x65	4,339.32	1,964.28	2,375.04	Golvin	7,634	9,000	-1,366	-17.89%	200/ha	45	Hanson 2016
Trebula Mutuesca	ITAL SAM-SAB #6	Italia Reg. IV Samnium-Sabina	AD 100 - AD 125	94x66	4,872.61	1,676.82	3,195.79	Tosi, Festuccia	10,272	500	9,772	95.13%	200/ha	2.5	Hanson 2016

ITALIA REG. V PICENUM

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Ancona	ITAL PICE #1	Italia Reg. V Picenum	0-AD 100	111x97	8,456.38	2,788.94	5,667.44	Golvin	18,217	8,000	10,217	56.08%	200/ha	40	Hanson 2016
Asculum Picenum	ITAL PICE #2	Italia Reg. V Picenum	?	148x125	14,529.86	-	-	Golvin	-	7,800	-	-	200/ha	39	Hanson 2016
Falerio Picenus	ITAL PICE #3	Italia Reg. V Picenum	AD 25-AD 75	88.8x80	5,579.46	-	-	Golvin	-	3,200	-	-	200/ha	16	Hanson 2016
Interamnia Praetuttiorum	ITAL PICE #4	Italia Reg. V Picenum	25BC - AD 50	73.93x56.16	3,260.90	-	-	Di Felice 2006	-	4,600	-	-	200/ha	23	Hanson 2016
Urbs Salvia	ITAL PICE #5	Italia Reg. V Picenum	AD 75-AD 76	96.6x74.6	5,659.86	1,837.17	3,822.69	Golvin	12,287	7,400	4,887	39.77%	200/ha	37	Hanson 2016

ITALIA REG. VI UMBRIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Carsulae	ITAL UMB #1	Italia Reg. VI Umbria	0-AD 100	86.5x62	4,212.09	1,833.87	2,378.22	Golvin	7,644	3,000	4,644	60.75%	200/ha	15	Hanson 2016
Fulginium	ITAL UMB #2	Italia Reg. VI Umbria	AD 68-AD 96	-	-	-	-	Golvin	-	7,400	-	-	200/ha	37	Hanson 2016
Hispellum	ITAL UMB #3	Italia Reg. VI Umbria	1st Century BC	108x82	6,955.48	1,651.52	5,303.96	Tosi et al, Golvin	17,048	2,600	14,448	84.75%	200/ha	13	Hanson 2016
Interamna Nahars	ITAL UMB #4	Italia Reg. VI Umbria	AD 0-AD 25	96.5x73	5,532.73	1,176.63	4,356.10	Golvin	14,002	9,600	4,402	31.44%	200/ha	48	Hanson 2016
Mevania	ITAL UMB #5	Italia Reg. VI Umbria	1st Century BC	80x53	3,330.08	829.38	2,500.70	Tosi et al, Golvin	8,038	2,800	5,238	65.17%	200/ha	14	Hanson 2016

Ocriculum	ITAL UMB #6	Italia Reg. VI Umbria	27BC-AD 68	120x98	9,236.28	2,111.15	7,125.13	Golvin	22,902	5,000	17,902	78.17%	200/ha	25	Hanson 2016
Spoletium	ITAL UMB #7	Italia Reg. VI Umbria	AD 100-AD 200	115x85	7,677.26	-	-	Golvin	-	4,600	-	-	200/ha	23	Hanson 2016
Suasa Senonum	ITAL UMB #8	Italia Reg. VI Umbria	AD 75 - AD 100	98.70x77.20	5,984.45	1,724.73	4,259.72	Tosi et al	13,692	4,200	9,492	69.33%	200/ha	21	Hanson 2016

ITALIA REG. VII ETRURIA

Amphitheatre/Place	Hacket No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Arretium Phase 1	ITAL ETR #1	Italia Reg. VII Etruria	27BC-AD 68	109.4x80	6,873.80	2,411.27	4,462.53	Golvin	14,344	11,000	3,344	23.31%	200/ha	55	Hanson 2016
Arretium Phase 2	ITAL ETR #2	Italia Reg. VII Etruria	AD 75-AD 125	121.4x92	8,771.95	2,411.27	6,360.68	Golvin	20,445	11,000	9,445	46.20%	200/ha	55	Hanson 2016
Falerii Novi	ITAL ETR #3	Italia Reg. VII Etruria	27BC-AD 14 (Probably)	88x66.4	4,589.23	1,394.56	3,194.67	Golvin	10,269	6,200	4,069	39.62%	200/ha	31	Hanson 2016
Ferentium	ITAL ETR #4	Italia Reg. VII Etruria	1st Century BC	67.5x40	2,120.57	-	-	Welch	-	6,200	-	-	200/ha	31	Hanson 2016
Florentia	ITAL ETR #5	Italia Reg. VII Etruria	27BC-AD 68	113x89	7,898.74	2,010.61	5,888.13	Golvin	18,926	4,400	14,526	76.75%	200/ha	22	Hanson 2016
Luca	ITAL ETR #6	Italia Reg. VII Etruria	AD 50-AD 150	124x96	9,349.37	3,330.08	6,019.29	Golvin	19,348	9,600	9,748	50.38%	200/ha	48	Hanson 2016
Lucus Feroniae	ITAL ETR #7	Italia Reg. VII Etruria	AD 100-AD 125	46.1x44.2	1,600.34	862.38	737.96	Golvin	2,372	5,000	-2,628	-110.79%	200/ha	25	Hanson 2016
Luna	ITAL ETR #8	Italia Reg. VII Etruria	27BC-AD 68	72.8x54.5	3,116.14	1,785.50	1,330.64	Golvin	4,277	4,600	-323	-7.55%	200/ha	23	Hanson 2016
Rusellae	ITAL ETR #9	Italia Reg. VII Etruria	0-AD 25	48x37	1,394.86	471.23	923.63	Golvin	2,969	4,000	-1,031	-34.73%	200/ha	20	Hanson 2016
Sutrium	ITAL ETR #10	Italia Reg. VII Etruria	1st Century BC	85x75	5,006.91	1,570.79	3,436.12	Welch	11,045	2,000	9,045	81.89%	200/ha	10	Hanson 2016
Volsinii	ITAL ETR #11	Italia Reg. VII Etruria	AD 68-AD 96 (Probably)	100.7x84.2	6,659.34	1,945.54	4,713.80	Golvin	15,152	7,000	8,152	53.80%	200/ha	35	Hanson 2016

ITALIA REG. VIII AEMILIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Ariminium	ITAL AEM #1	Italia Reg. VIII Aemilia	27BC-AD 68	117.7x88.1	8,144.08	2,557.25	5,586.83	Golvin	17,958	8,000	9,958	55.45%	200/ha	40	Hanson 2016
Forum Cornelii	ITAL AEM #2	Italia Reg. VIII Aemilia	AD 100 - AD 125	108x81	6,870.66	2,104.86	4,765.80	Golvin	15,319	8,600	6,719	43.86%	200/ha	43	Hanson 2016
Parma	ITAL AEM #3	Italia Reg. VIII Aemilia	27BC-AD 68	135x108	11,451.10	2,431.59	9,019.51	Golvin	28,991	4,200	24,791	85.51%	200/ha	21	Hanson 2016
Veleia	ITAL AEM #4	Italia Reg. VIII Aemilia	30 BC-20 AD	54.9x44.1	1,901.51	741.02	1,160.49	Golvin	3,730	2,000	1,730	46.38%	200/ha	10	Hanson 2016

ITALIA REG. IX LIGURIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overal Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Albingaunum	ITAL LIG #1	Italia Reg. IX Liguria	AD 100-AD 200	70x50	2,748.89	1,178.09	1,570.80	Golvin	5,049	1,600	3,449	68.31%	200/ha	8	Hanson 2016
Augusta Bagiennorum	ITAL LIG #2	Italia Reg. IX Liguria	0-AD 100	117x92	8,454.02	2,945.24	5,508.78	Tosi et al, Golvin	17,707	3,200	14,507	81.93%	200/ha	16	Hanson 2016
Libarna	ITAL LIG #3	Italia Reg. IX Liguria	AD 75-AD 100	88x58.7	4,057.05	1,902.39	2,154.66	Golvin	6,926	4,000	2,926	42.24%	200/ha	20	Hanson 2016
Pollentia	ITAL LIG #4	Italia Reg. IX Liguria	AD 75 - AD 125	132x98	10,159.91	3,091.31	7,068.60	Preacco 2006	22,721	5,000	17,721	77.99%	200/ha	25	Hanson 2016

ITALIA REG. X VENETIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Aquileia	ITAL VEN #1	Italia Reg. X Venetia	AD 41-AD 54 (Possibly)	142x118	13,160.13	2,601.23	10,558.90	Golvin	33,939	16,000	17,939	52.86%	200/ha	80	Hanson 2016
Patavium	ITAL VEN #2	Italia Reg. X Venetia	27BC - AD 14	102.5x65.5	5,272.96	2,370.17	2,902.79	Golvin	9,330	26,000	-16,670	-178.66%	200ha	130	Hanson 2016
Pola (Phase 1)	ITAL VEN #3	Italia Reg. X Venetia	27BC-AD 14	123x96.5	9,322.28	2,223.79	7,098.49	Golvin	22,817	4,800	18,017	78.96%	200/ha	24	Hanson 2016
Pola (Phase 2)	ITAL VEN #4	Italia Reg. X Venetia	AD 41-AD 54	132.5x105.1	10,937.25	2,223.79	8,713.46	Golvin	28,008	4,800	23,208	82.86%	200/ha	24	Hanson 2016
Verona	ITAL VEN #5	Italia Reg. X Venetia	0-100	152.4x123.2	14,746.38	2,639.78	12,106.60	Golvin	38,914	10,400	28,514	73.27%	200/ha	52	Hanson 2016

ITALIA REG. XI GALLIA TRANSPADANA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Augusta Praetoria	ITAL GAL TRANS #1	Italia Reg. XI Gallia Transpadana	0-100 (Probably)	86x73	4,930.72	1,022.58	3,908.14	Golvin	12,562	8,200	4,362	34.72%	200/ha	41	Hanson 2016
Eporedia	ITAL GAL TRANS #2	Italia Reg. XI Gallia Transpadana	AD 100-AD 200	96x72	5,428.67	2,210.11	3,218.56	Golvin	10,345	17,000	-6,655	-64.32%	200/ha	85	Hanson 2016
Mediolanum	ITAL GAL TRANS #3	Italia Reg. XI Gallia Transpadana	0-AD 25	155x125	15,217.08	2,557.25	12,659.83	Golvin	40,692	21,000	19,692	48.39%	200/ha	105	Hanson 2016

MAURETANIA CAESARIENSIS & MAURETANIA TINGITANA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Iol Caesarea (Phase 1)	MAURE C #1	Mauretania Caesariensis	0-AD 100	124x67	6,525.08	3,490.30	3,034.78	Golvin	9,755	63,000	-53,245	-545.85%	200/ha	315	Hanson 2016
Iol Caesarea (Phase 2)	MAURE C #2	Mauretania Caesariensis	AD 150-AD 250	134x77	8,103.73	3,490.30	4,613.43	Golvin	14,829	63,000	-48,171	-324.85%	200/ha	315	Hanson 2016
Tigava Castra (A)	MAURE C #3	Mauretania Caesariensis	AD 100-AD 200	56x37	1,627.34	898.49	728.85	Golvin	2,343	-	-	-	200/ha	Unknown	Hanson 2016
Tipasa	MAURE C #4	Mauretania Caesariensis	AD 175-AD 225	77x55	3,326.16	1,566.86	1,759.30	Golvin	5,655	11,400	-5,745	-101.60%	200/ha	57	Hanson 2016
Lixus	MAURE T #1	Mauretania Tingitana	AD 50-AD 117	-	-	-	0.00	Golvin	0	3,800	-3,800	-	200/ha	19	Hanson 2016

NORICUM

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Flavia Solva	NOR #1	Noricum	AD 117 - AD 138	97x45	3,428.26	2,336.55	1,091.71	Golvin	3,509	3,400	109	3.11%	200/ha	17	Wilson 2011
Virunum	NOR #2	Noricum	-	108x46	3,901.85	2,362.47	1,539.38	Jernej and Gugl 2004	4,948	7,400	-2,452	-49.56%	200/ha	37	Hanson 2016

NUMIDIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Gemellae	NUM #1	Numidia	AD 132-AD 133	84x64	4,222.30	2,940.53	1,281.77	Golvin	4,120	-	-	-	200/ha	Unknown	Hanson 2016
Lambaesis (Phase 1) (L)	NUM #2	Numidia	AD 128-AD 170	88x75	5,183.62	2,937.38	2,246.24	Golvin	7,220	10,000	-2,780	-38.50%	200/ha	50	Hanson 2016
Lambaesis (Phase 2) (L)	NUM #3	Numidia	AD 169-AD 190	104.6x94	7,722.34	2,937.38	4,784.96	Golvin	15,380	10,000	5,380	34.98%	200/ha	50	Hanson 2016
Rusicade	NUM #4	Numidia	AD 100-AD 150	78x59	3,614.40	1,413.71	2,200.69	Golvin	7,074	12,000	-4,926	-69.64%	200/ha	60	Hanson 2016
Sicca Veneria	NUM #5	Numidia	0-AD 50	100x80	6,283.18	2,748.89	3,534.29	Bomgardner, Golvin	11,360	6,200	5,160	45.42%	200/ha	31	Wilson 2011
Simmithu	NUM #6	Numidia	0-AD 50	61x52.2	2,500.86	506.58	1,994.28	Bomgardner	6,410	12,200	-5,790	-90.32%	200/ha	61	Hanson 2016

PANNONIA INFERIOR AND PANNONIA SUPERIOR

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Aquincum Civ.	PAN INF #1	Pannonia Inferior	AD 150-AD 200	86.5x75.5	5,129.23	1,682.32	3,446.91	Golvin	11,079	10,000	1,079	9.74%	200/ha	50	Hanson 2016
Aquincum Mil. (L)	PAN INF #2	Pannonia Inferior	AD 145-AD 161	131x107	11,008.92	4,589.23	6,419.69	Golvin	20,635	10,000	10,635	51.54%	200/ha	50	Hanson 2016
Carnuntum Civ.	PAN SUP #1	Pannonia Superior	AD 100-AD 200	122x106	10,156.76	2,777.16	7,379.60	Golvin	23,720	11,400	12,320	51.94%	200/ha	57	Hanson 2016
Carnuntum Mil. (L)	PAN SUP #2	Pannonia Superior	AD 14-AD 62	98x76	5,849.64	2,512.06	3,337.58	Golvin	10,728	0	10,728	100.00%	200/ha	57	Hanson 2016
Scarbantia	PAN SUP #3	Pannonia Superior	AD 100-AD 200	-	-	2,078.16	-	Janos & Kaus 2007	-	4,600	-	-	200/ha	23	Hanson 2016

RAETIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Kunzing (A)	RAE #1	Raetia	0-AD 100	35x30	824.66	-	-	Sommer	-	-	-	-	Unknown	Unknown	Sommer 2009
Unterkirchberg (A)	RAE #2	Raetia	-	47x47	1,734.94	-	-	Sommer	-	-	-	-	Unknown	Unknown	Sommer 2009

SICILIA AND SARDINIA

Amphitheatre/Place	Hackett No.	Province	Construction Date	Overall Size (m)	Size (m²)	Size of Arena (m²)	Size of Cavea (m²)	Source(s)	Capacity Estimate	Population Estimate	Capacity Difference	Percentage Difference	Density per Ha	Ha	Source(s)
Caralis	SARD #1	Sardinia	AD 100-AD 200	92.8x79.2	5,772.48	1,220.32	4,552.16	Golvin	14,632	6,000	8,632	58.99%	N/A	N/A	Wilson 2011
Catana	SICI #1	Sicilia	AD 100-AD 200	143.8x121	13,665.77	3,713.46	9,952.31	Golvin	31,990	19,650	12,340	38.57%	150/ha	131	Hanson 2016
Syracuse	SICI #2	Sicilia	27BC-AD 14	146.8x118.7	13,685.68	2,176.38	11,509.30	Golvin, Wilson 1990	36,994	59,200	-22,206	-60.03%	200/ha	296	Hanson 2016
Thermae Himerae (Phase 1)	SICI #3	Sicilia	AD 50-AD 150	87x66	4,509.75	1,201.65	3,308.10	Golvin	10,633	12,300	-1,667	-15.68%	150/ha	82	Hanson 2016
Thermae Himerae (Phase 2)	SICI #4	Sicilia	-	98x75	5,772.67	1,201.65	4,571.02	Wilson 1990	14,693	12,300	2,393	16.28%	150/ha	82	Hanson 2016

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